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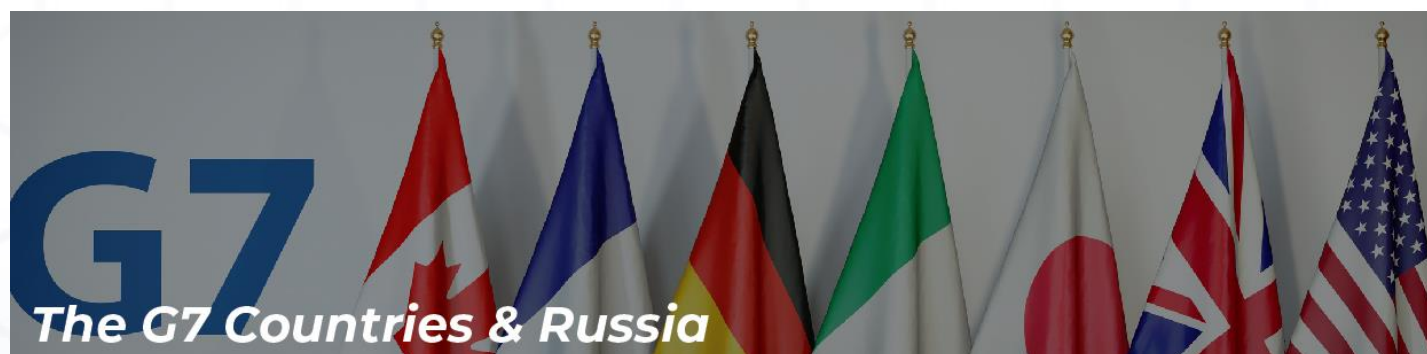
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Maratand Temple

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Chinook Helicopters

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PRELIMS



POLITY & GOVERNANCE



Narcotic Drugs and Psychotropic Substances (NDPS) Act

In News: The Karnataka High Court recently observed that nowhere in the Narcotic Drugs and Psychotropic Substances (NDPS) Act is bhang referred to as a prohibited drink or prohibited drug.

Bhang and the related law:

- Bhang is the **edible preparation made from the leaves of the cannabis plant**, often incorporated into drinks such as thandai and lassi, **along with various foods**.
- Enacted in 1985, the **NDPS Act is the main legislation that deals with drugs and their trafficking**.
- Various provisions of the Act **punish production, manufacture, sale, possession, consumption, purchase, transport, and use of banned drugs**, except for medical and scientific purposes.

Narcotic Drugs and Psychotropic Substances Act, 1985

- The NDPS Act **prohibits a person from the production/manufacturing/cultivation, possession, sale, purchasing, transport, storage, and/or consumption of any narcotic drug or psychotropic substance**.
- Initially enacted in 1985, the Act was **amended three times in 1988, 2001 and 2014**.
- According to the Act, narcotic drugs include **coca leaf, cannabis (hemp), opium, and poppy straw**.
- **All the offences under the NDPS Act are non-bailable**.
- Under the Act, **property acquired by a person from drug-related offences, who has been convicted under the Act can be seized, frozen and forfeited** by the government.
- **no relief can be sought by the drug convicts by termination, remission, and commutation of sentences passed**.

Penalty: The **offences under the Act attract jail terms ranging from one year to 20 years** and fine depending on the crime.

Narcotics Control Bureau:

- NCB is the **nodal drug law enforcement and intelligence agency of India** responsible for **fighting drug trafficking and the abuse of illegal substance**.
- It functions under **Union Ministry of Home Affairs (MHA)**.
- It is headquartered in New Delhi.
- It was established under **Narcotic Drugs and Psychotropic Substances Act, 1985**.

National Legal Services Authority (NALSA)


In News: Justice D.Y. Chandrachud has been appointed as the executive chairman of National Legal Services Authority (NALSA).

The NALSA: Constituted under the **Legal Services Authorities Act, 1987**. While the **CJI is the Patron-in-Chief**, the **second senior most judge of the Supreme Court of India is the executive chairperson of the Authority**.

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| | <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>Who is Eligible for Getting Free Legal Services?</p> <ul style="list-style-type: none"> • Women and children • Members of SC/ST • Industrial workmen • Victims of mass disaster, violence, flood, drought, earthquake, industrial disaster. • Disabled persons • Persons in custody • Those persons who have annual income of less than the amount prescribed by the respective State Government, if the case is before any court other than the Supreme Court, and less than Rs. 5 Lakhs, if the case is before the Supreme Court. • Victims of Trafficking in Human beings or beggar. |
| PM SHRI Schools | <p>Context: Recently Union Cabinet, chaired by the Prime Minister approved a new centrally sponsored scheme – PM SHRI Schools (PM SchHools for Rising India).</p> <p>Key features of PM SHRI scheme:</p> <ul style="list-style-type: none"> • It aims to provide high-quality education as per the vision of NEP 2020. • These Schools will be developed as green schools to protection of environment, climate change related hackathon and awareness generation to adopt sustainable lifestyle. • Focus will be on learning outcomes of every child in every grade. • Linkage with Sector Skill Councils and local industry for enhancing employability and providing better employment opportunities will be explored. • A School Quality Assessment Framework (SQAF) is being developed, specifying the key performance indicators to measure outcomes. <p>How it is implementing?</p> <ul style="list-style-type: none"> • PM SHRI Schools would be implemented through the existing administrative structure available for Samagra Shiksha, Kendriya Vidyalayas (KVs) and Jawahar Navodaya Vidyalayas (JNVs). <p>Identification of PM shri school under the scheme:</p> <ul style="list-style-type: none"> • The PM SHRI scheme will be application-based, which means states will have to identify schools for upgradation under the scheme. • According to the selection methodology decided by the central government, states and UTs interested in getting included under the scheme will have to first agree to implement the NEP in its entirety. |

| | <ul style="list-style-type: none">Only those schools that meet a certain benchmark will qualify — the qualification criteria will include around 60 parameters from the availability of electricity to toilets.Teams of state government officials, KVs, and JNVs will verify the claims made by the applicant school through a physical inspection. “Maximum two schools (one Elementary & one Secondary/ Senior Secondary) would be selected per block/ ULB...” (urban local body) as per the plan. The final call will be taken by an expert committee. | | | | | | | | |
|---|---|--|--------------------------|--------------------------------|---|--|-------------------------------------|--|--|
| The Criminal Procedure (Identification) Act, 2022 | Context: The Bill replaces the Identification of Prisoners Act, 1920. | | | | | | | | |
| | What is the proposed law? | | | | | | | | |
| | <ul style="list-style-type: none">Coverage- It proposes that the law apply to three categories of individuals.<ul style="list-style-type: none">All Convicted persons (earlier it was only for certain cases)Arrested PersonsSuspected CriminalsPersons held under any preventive detention lawRetention of details: The law also empowers the National Crime Records Bureau (NCRB) to store, preserve, share with any law enforcement agency and destroy the record of measurements at national level. The records can be stored up to a period of 75 years.Removal of details: The record may be destroyed in case of persons who: (i) have not been previously convicted, and (ii) are released without trial, discharged, or acquitted by the court, after exhausting all legal remedies.<ul style="list-style-type: none">Police personnel up to the rank of Head Constable have been authorised to record the measurements.Resistance to giving details: As per the Bill, resistance or refusal to give details will be considered an offence under the Indian Penal Code, 1860.Role of the National Crime Records Bureau (NCRB): Functions of NCRB under the Bill include:<ul style="list-style-type: none">Collect the details about the persons covered under the Bill from state/UT governments, or other law enforcement agenciesstoring and destroying the details about specified persons at the national levelprocessing the details with relevant criminal records, anddisseminating the details to law enforcement agencies. | | | | | | | | |
| | How is the new law different from the old 1920 act? | | | | | | | | |
| <table><tr><th></th><th>1920 Act</th><th>Changes in the 2022 Bill</th></tr><tr><td>Data permitted to be collected</td><td><ul style="list-style-type: none">Fingerprints, foot-print impressions, photographs</td><td><ul style="list-style-type: none">Adds: (i) biological samples, and their analysis, (ii) behavioural attributes including signatures, handwriting, and (iii) examinations under sections 53 and 53A of CrPC (includes blood, semen, hair samples, and swabs, and analyses such as DNA profiling)</td></tr><tr><td>Persons whose data may be collected</td><td><ul style="list-style-type: none">Convicted or arrested for offences punishable with rigorous imprisonment of one year or more</td><td><ul style="list-style-type: none">Convicted or arrested for any offence. However, biological samples may be taken forcibly only from persons arrested for offences against a woman or a child, or if the</td></tr></table> | | 1920 Act | Changes in the 2022 Bill | Data permitted to be collected | <ul style="list-style-type: none">Fingerprints, foot-print impressions, photographs | <ul style="list-style-type: none">Adds: (i) biological samples, and their analysis, (ii) behavioural attributes including signatures, handwriting, and (iii) examinations under sections 53 and 53A of CrPC (includes blood, semen, hair samples, and swabs, and analyses such as DNA profiling) | Persons whose data may be collected | <ul style="list-style-type: none">Convicted or arrested for offences punishable with rigorous imprisonment of one year or more | <ul style="list-style-type: none">Convicted or arrested for any offence. However, biological samples may be taken forcibly only from persons arrested for offences against a woman or a child, or if the |
| | 1920 Act | Changes in the 2022 Bill | | | | | | | |
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| Persons whose data may be collected | <ul style="list-style-type: none">Convicted or arrested for offences punishable with rigorous imprisonment of one year or more | <ul style="list-style-type: none">Convicted or arrested for any offence. However, biological samples may be taken forcibly only from persons arrested for offences against a woman or a child, or if the | | | | | | | |

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| | | <ul style="list-style-type: none"> Persons ordered to give security for good behaviour or maintaining peace Magistrate may order in other cases collection from any arrested person to aid criminal investigation | <p>offence carries a minimum of seven years imprisonment</p> <ul style="list-style-type: none"> Persons detained under any preventive detention law On the order of Magistrate, from any person (not just an arrested person) to aid investigation |
| | Persons who may require/direct collection of data | <ul style="list-style-type: none"> Investigating officer, officer in charge of a police station, or of rank Sub-Inspector or above Magistrate | <ul style="list-style-type: none"> Officer in charge of a police station, or of rank Head Constable or above. In addition, a Head Warder of a prison Metropolitan Magistrate or Judicial Magistrate of first class. In case of persons required to maintain good behaviour or peace, the Executive Magistrate |
| Foundational Learning Study (FLS) | <p>In News: A nationwide study has been carried out jointly by the Union Ministry of Education and the National Council of Educational Research and Training (NCERT).</p> <p>Key Findings:</p> <ul style="list-style-type: none"> 37 per cent of students enrolled in Class III have “limited” foundational numeracy skills, such as identifying numbers, while 11 per cent “lack the most basic knowledge and skills”. While 15 per cent lacked “basic skills” in English, 30 per cent were found to have “limited skills”, 21 per cent had sufficient skills, while 34 per cent had fairly superior skills. At the national level, 11 per cent did not have the basic grade-level skills; 37 per cent had limited skills; 42 per cent had sufficient skills; and 10 per cent had superior skills. In numeracy, Tamil Nadu, at 29 per cent, had the maximum number of students who could not complete the most basic grade-level tasks, followed by Jammu and Kashmir (28 per cent), Assam, Chhattisgarh and Gujarat (18 per cent). Among other Indian languages, the proportion of students who lacked basic skills was: 17 per cent in Marathi, 20 per cent in Bengali, 17 per cent in Gujarati, 17 per cent in Malayalam, 42 per cent in Tamil, and 25 per cent in Urdu. <p>Utility of the Findings:</p> <ul style="list-style-type: none"> The findings will set the baseline for NIPUN Bharat (National Initiative for Proficiency in Reading with Understanding and Numeracy), the Centre’s scheme to improve foundational learning. <p>National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN Bharat)</p> <ul style="list-style-type: none"> Aims to achieve universal foundational literacy and numeracy in primary classes and to ensure that all children attain grade-level competencies in reading, writing and numeracy. | | |

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| | <ul style="list-style-type: none"> Lays down priorities and actionable agendas for States/UTs to achieve the goal of proficiency in foundational literacy and numeracy for every child by grade 3. Detailed guidelines have been developed for implementation of the NIPUN Bharat Mission which includes the Lakshya or Targets for Foundational Literacy and Numeracy starting from the Balvatika upto age group 9. |
| Kushiyara river water agreement | <p>In News: The Kushiyara river water agreement signed between India and Bangladesh on September 6 2022 is the first major water sharing accord between the two friendly neighbours since the Ganga water treaty in 1996.</p> <ul style="list-style-type: none"> The India-Bangladesh joint river commission met in New Delhi last month after 12 years and agreed on several vital initiatives. Kushiyara river is a distributary of the Barak River which originates in the uplands of Assam and flows through it, and then on to Bangladesh. Barak River rises in Manipur and is part of Surma-Meghna River System. The agreement is aimed to benefit the southern areas of Assam in India and the Sylhet region in Bangladesh. The water of Kushiyara will be channelled through the Rahimpur Canal project in Sylhet. <p>Geographical insight:</p> <ul style="list-style-type: none"> Bangladesh and India share a 4,096-kilometre-long (2,545 mi) international border, which is the longest land boundary that India shares with any of its neighbours. The countries share over 50 rivers such as the main branch of the Ganges known as the Padma River <p>Significance</p> <ul style="list-style-type: none"> Help in addressing the major issue of changing nature of the river which unleashes floods in Bangladesh during the monsoon and goes dry during the winter when demand of water goes up because of a crop cycle in Sylhet. To ensure steady supply of water for irrigation of agriculture fields and orchards of the subdivisions of Sylhet. Greater cooperation in flood control Strengthening mutual cooperation in combating pollution of common river. |
| Exercise Parvat Prahar | <p>Context: Army chief General Manoj Pande visited the Ladakh sector to review Exercise Parvat Prahar.</p> <p>Key details:</p> <ul style="list-style-type: none"> The exercise was held in the Ladakh plateau at an altitude of 14,000 feet. This exercise used newly inducted all-terrain vehicles transported by Chinook heavy lift helicopters and K9-Vajra howitzers. The exercise featured a display of operational capabilities by artillery guns and other key weapon systems. Simultaneously on the western front, Exercise Gagan Strike culminated with a fire power display of attack helicopters supporting deep operations by Strike Corps.  |

Indo-Pacific Economic Framework's (IPEF) trade pillar

In News: India has for now opted to stay out of the **Indo-Pacific Economic Framework's (IPEF)** trade pillar.

Indo-Pacific Economic Framework (IPEF)

- According to an insight paper on IPEF put out by the US Congressional Research Service, the IPEF is not a traditional trade agreement. Rather, it would include **different modules (four pillars) covering:**
 - **fair and resilient trade,**
 - **supply chain resilience,**
 - **infrastructure and decarbonization, and**
 - **tax and anticorruption.**

India and IPEF:

- India decided to join three pillars of IPEF
 - **India has joined the supply chain, decarbonisation and infrastructure, and anti-tax and corruption pillars of the IPEF.** However, it has decided to remain out of the trade pillar.

Reasons for India not joining the trade pillar:

- So far, official reason has not been given. However, trade experts say India may have some **genuine concerns regarding certain aspects of the trade pillar** that perhaps go beyond WTO obligations.

Juvenile Justice (Care and Protection Amendment) Model Amendment Rules 2022

Context: Recently, the Government of India recently notified the Juvenile Justice (Care and Protection Amendment) Model Amendment Rules 2022.

The Juvenile Justice (Care or Protection of Children) Act/JJ Act, 2015:

- The Act was introduced (by the **Ministry of Women and Child Development**) and passed in 2015 to replace the **Juvenile Delinquency Law and the Juvenile Justice (Care and Protection of Children) Act, 2000.**
- One of the main provisions of the Act is **allowing the trial of juveniles** in conflict with law in the age **group of 16-18 years as adults.**
 - Under the Act, **offences committed by juveniles** are categorised as **heinous (with minimum or maximum sentence of 7 years), serious (with 3-7 years of imprisonment) and petty offences.**
- According to the Act, juveniles charged with **heinous crimes and between the ages of 16-18 years** would be tried as adults and processed through the adult justice system.
- The nature of the **crime and whether the juvenile should be tried as a minor or a child**, was to be determined by a Juvenile Justice Board.
- The **Act streamlined adoption procedures for orphans, abandoned and surrendered children** and the existing **Central Adoption Resource Authority (CARA)** has been made a statutory body to enable it to perform its function more effectively.
- The State Government may, by notification, establish one or more **Child Welfare Committees (CWC)** for each district or group of districts to exercise the powers conferred under this Act.
- The Committee shall be composed of a **Chairperson and four other members**, at least one of whom shall be a woman and another a child expert.

The Juvenile Justice (Care or Protection of Children) Amendment Act, 2021:

- The amendment has been based on a **National Commission for Protection of Child Rights (NCPCR) report (2018-19)** in which over **7,000 Child Care Institutions (CCIs or children's homes)** were surveyed.

| | |
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| | <ul style="list-style-type: none"> ○ The report found that 1.5% of CCIs do not conform to rules and regulations of the JJ Act and 29% of them had major shortcomings in their management. ○ It also found that not a single CCI in the country was found to be 100% compliant to the provisions of the JJ Act. <p>The amendments:</p> <ul style="list-style-type: none"> • According to the amendment, District Magistrates (DMs), including Additional District Magistrates (ADMs), can now issue adoption orders under the JJ Act. <ul style="list-style-type: none"> ○ This is to ensure faster case resolution and increased accountability. • The new amendment prohibits the opening of any new CCI without the sanction of the DM. <ul style="list-style-type: none"> ○ Now, DMs are also responsible for ensuring that CCIs falling in their district are following all norms and procedures. ○ The DM will also carry out background checks (including educational qualifications) of CWC members, who are usually social welfare activists, as there is no such provision currently. • According to the Act, serious offences will also include offences for which the maximum punishment is more than seven years in prison and the minimum punishment is not prescribed or is less than seven years. • The Model Rules state that a person associated with an organisation receiving foreign contribution shall not be eligible to be a Chairperson or member of the Committee. • As per the Chairperson of NCPCR (Priyank Kanoongo), those on CWC have the power of a magistrate and are equivalent to government officials, who are barred under Foreign Contribution (Regulation) Act, 2010, from receiving foreign funds. • It also states that anyone involved in the implementation of the JJ Act in any NGO or organisation that creates a conflict of interest will be ineligible to serve on a CWC. • It goes on to say that anyone with “any family member” or “close relation” working for an NGO is ineligible to be on a CWC. • Anyone involved in rescue and rehabilitation in the district, as well as anyone representing someone running a CCI or a member of the Board or Trust of any NGO, is not eligible to serve on a CWC. • Retired judicial officers have also been omitted from the category of persons who can be considered for appointment to a CWC. |
| National Assessment and Accreditation Council (NAAC) | <p>In news: The NAAC withheld the grading of the Maharaja Sayajirao University of Baroda after receiving an anonymous complaint that the university unduly tried to influence the peer review team with gold, cash and other favours.</p> <p>About: There are 1,043 universities and 42,343 colleges listed on the portal of the All-India Survey on Higher Education (AISHE) and 406 universities and 8,686 colleges are accredited.</p> <ul style="list-style-type: none"> • Maharashtra accounts for the highest number of accredited colleges, followed by Karnataka. Tamil Nadu has the most accredited universities at 43. <p>About NAAC:</p> <ul style="list-style-type: none"> • It is an autonomous body under the University Grants Commission (UGC). • It carries out quality checks or assessments of Indian Higher-level Educational Institutions (HEIs), • It certifies HEIs with gradings as part of accreditation. The ratings of institutions range from A++ to C. If an institution is graded D, it means it is not accredited. • Through a multi-layered process, a higher education institution learns whether it meets the standards of quality set by the evaluator in terms of curriculum, faculty, infrastructure, research, and other parameters. |

Methodology:

- Accreditation has been made **mandatory** through the UGC (Mandatory Assessment and Accreditation of Higher Educational Institutions) Regulations, 2012.
- The current approach to accreditation is “**input-based**” implying heavy reliance on **self-assessment reports** of applicant institutions related to quantitative and qualitative metrics.
- The data is then validated by NAAC expert teams and is followed by peer team visits to the institutions.
- The process of **Peer Team Visits** adds substantial effort on the part of both NAAC and the HEIs.
- Only higher education institutions that are **at least six years old**, or from where at least **two batches of students have graduated**, can apply.
- The accreditation is valid for **five years**.
- When an institution undergoes the accreditation process for the first time it is referred to as **Cycle 1**, and the subsequent five-year periods as Cycles 2, 3 and so on.



INTERNATIONAL RELATIONS

**The Kyrgyzstan - Tajikistan Conflict**

Context: Nearly 100 people have been killed and scores injured in violent border clashes between Kyrgyzstan and Tajikistan.

Kyrgyzstan-Tajikistan: border clashes

- The borders of the two republics were demarcated under Joseph Stalin's leadership.
- Historically, the Kyrgyz and Tajik populations enjoyed common rights over natural resources.
- **Ferghana valley** continues to be a site of struggle and frequent violent outbursts, with the location consisting primarily of **Tajiks, Kyrgyz, and Uzbeks**, who have historically shared common sociological specificities, economic activities, and religious practices.
- This '**development project**' resulted in the large-scale displacement of nomadic communities, eventually contributing to the 'environment driver' of the current conflict.

Chinook helicopters

In News: The US Army has grounded its fleet of CH-47 Chinook helicopters after finding the helicopter to be at **risk of engine fires**. The Indian Air Force (IAF) also operates a fleet of Chinook Helicopters.



About Chinook: India had signed a 3-billion-dollar deal with the US in 2015 for the purchase of 15 Chinook heavy lift and 22 AH-64E Apache attack helicopters.

Features:

- The Chinook is a **multi-role, vertical-lift platform**, which is used for **transporting troops, artillery, equipment and fuel**.
- It is also used for **humanitarian and disaster relief operations** and in missions such as transportation of relief supplies and mass evacuation of refugees.
- Chinooks have a **unique twin engine, tandem rotor design** which has become one of the most visibly recognised symbols of the American armed forces.

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| | <ul style="list-style-type: none"> The helicopter, which can carry around 10 tonnes of load, significantly enhanced IAF's air lift capabilities. |
| G7 and Russia | <p>In News: The Group of Seven countries are working to cap the price of Russian oil in an attempt to limit Moscow's ability to fund its invasion of Ukraine.</p> <p>About G7 Countries: The Group of Seven (G7) is an inter-governmental political forum for maintaining mutually close political, economic, social, legal, environmental, military, religious, cultural, and diplomatic relations.</p> <ul style="list-style-type: none"> Members are the world's largest IMF advanced economies and liberal democracies – the United States, Japan, Germany, Britain, France, Italy and Canada – and the EU Features: shared values of pluralism and representative government. As of 2020, the collective group accounts for over 50 percent of global net wealth and 32 to 46 percent of global gross domestic product including 10 percent of the world's population. From 2022, Germany has taken over the rotating presidency of the G7, following the presidency of the United Kingdom Objectives: Discussing and coordinating solutions to major global issues, especially in the areas of trade, security, economics, and climate change. The G7 is not based on a treaty and has no permanent secretariat or office <p>Why has the G8 become the G7?</p> <ul style="list-style-type: none"> The G7 became the G8 when the Russian Federation joined from 1998. However, the leaders of the European members, North American members and Japan suspended their participation in the G8 in 2014 – during the Russian Presidency – because of the violation of the sovereignty and territorial integrity of Ukraine by the Russian Federation. They resumed work the same year in a seven-member format. |
| Treaty on the Non-Proliferation of nuclear weapons (NPT) | <p>Context: The Tenth Review Conference of the Parties to the Treaty on the Non-Proliferation of nuclear weapons (NPT) concluded recently.</p> <p>About NPT : The NPT was negotiated during the 1960s to reconcile three competing objectives —</p> <ul style="list-style-type: none"> Controlling the further spread of nuclear weapons beyond the P-5 countries (the U.S., the U.S.S.R., the U.K, France and China) that had already tested; Committing to negotiating reductions of nuclear arsenals leading to their elimination; and Sharing benefits of peaceful applications of nuclear science and technology. <p>Treaty on the Prohibition of nuclear weapons (TPNW):</p> <ul style="list-style-type: none"> Frustrated by the absence of progress on nuclear disarmament, the nuclear have-nots successfully negotiated a Treaty on the Prohibition of nuclear weapons (TPNW, also called Ban Treaty) in 2017 that entered into force in January 2021. All 86 signatories are nuclear have-nots and parties to the NPT. It is the first legally binding international agreement to comprehensively prohibit nuclear weapons, with the goal of leading towards their total elimination. <p>Comprehensive Test Ban Treaty (CTBT)</p> <ul style="list-style-type: none"> The Comprehensive Test Ban Treaty (CTBT) was concluded in 1996 but has yet to formally enter into force because two major powers, the S. and China, have yet to ratify it. The CTBT is the Treaty banning all nuclear explosions – everywhere, by everyone. |

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| | <ul style="list-style-type: none"> The Treaty will enter into force after all 44 States listed in Annex 2 to the Treaty will ratify it. These States had nuclear facilities at the time the Treaty was negotiated and adopted. India, North Korea and Pakistan have not yet signed the Treaty. |
| Abraham Accords and I2U2 | <p>Context: Israel, the United Arab Emirates and Bahrain signed the United States-brokered Abraham Accords. It was a historic moment for our peoples and nations, fostering new hope for peace and prosperity in the Middle East.</p> <p>Key points:</p> <ul style="list-style-type: none"> New joint ventures among Bahrain, Israel, UAE, and India are being undertaken in critical sectors such as clean energy, health, innovation, technology, agriculture, water, trade, tourism, and sustainability. The Accords have paved the way for greater regional and multinational cooperation. Expanding economic opportunities continue to reach India. <ul style="list-style-type: none"> One concrete example of high-level economic cooperation between our governments is the formation of the I2U2 Group, established by Israel, India, the UAE, and the United States. <p>About I2U2 Group:</p> <ul style="list-style-type: none"> I2U2 was initially formed in October, 2021 following the Abraham Accords between Israel and the UAE, to deal with issues concerning maritime security, infrastructure, and transport in the region. At that time, it was called the 'International Forum for Economic Cooperation'. That was referred as the 'West Asian Quad'. I2U2 initiative is a new grouping of India, Israel, USA, and UAE. In the grouping's name, 'I2' stands for India and Israel, whereas 'U2' stands for USA and the UAE. |
| Eastern Economic Forum (EEF) | <p>In News: Russia hosted the seventh Eastern Economic Forum (EEF) Vladivostok from September 5 to 8. The four-day forum is a platform for entrepreneurs to expand their businesses into Russia's Far East (RFE).</p> <p>About RFE:</p> <ul style="list-style-type: none"> The region encompasses one-third of Russia's territory and is rich with natural resources such as fish, oil, natural gas, wood, diamonds, and other minerals. The region's riches and resources contribute to five per cent of Russia's GDP. But despite the abundance and availability of materials, procuring and supplying them is an issue due to the unavailability of personnel. <p>About EEF:</p> <ul style="list-style-type: none"> The Eastern Economic Forum was established in 2015 to encourage foreign investments in Russia's the Far East. As an annual gathering, EEF displays the economic potential, suitable business conditions and investment opportunities in the region. As of 2022, almost 2,729 investment projects are being planned in the region with a focus on infrastructure, transportation projects, mineral excavations, construction, industry, and agriculture. Will India be able to achieve a balance between the EEF and the IPEF! |

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| | <ul style="list-style-type: none"> The U.S.-led Indo-Pacific Economic Framework for Prosperity (IPEF) and the EEF are incomparable based on its geographic coverage and the partnership with the host-countries. India has vested interests in both the forums and has worked towards balancing its involvement. <ul style="list-style-type: none"> India has not shied away from investing in the Russia-initiated EEF despite the current international conditions. |
| Commonwealth of Nations | <p>Context: The death of Queen Elizabeth II of the United Kingdom made turning point for the 14 Commonwealth realms of which she was the Head of State.</p> <p>What is the Commonwealth and what are its realms?</p> <ul style="list-style-type: none"> The Commonwealth of Nations is a group of 56 countries comprised mostly of former British colonies including India. The Commonwealth consists of both republics and realms. The British monarch is the Head of State for the realms, whereas the republics are ruled by elected governments, except in the case of five countries — Brunei Darussalam, Eswatini, Lesotho, Malaysia, and Tonga — each a self-governed monarchy. The realms are comprised of Antigua and Barbuda, Australia, the Bahamas, Belize, Canada, Grenada, Jamaica, New Zealand, Papua New Guinea, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, the Solomon Islands, and Tuvalu. <p>How is the Commonwealth viewed by its members?</p> <ul style="list-style-type: none"> During the Queen's third and final visit to India in 1997, many expected an apology for the Jallianwalla Bagh massacre of 1919, carried out by the erstwhile colonial government, and ordered by General Reginald Dyer. <ul style="list-style-type: none"> Yet that apology never came, and instead the Queen only referenced the killings during a banquet speech when she said, "It is no secret that there have been some difficult episodes in our past. Jallianwala Bagh is a distressing example." It was also in 1997 that the U.K. handed over control of Hong Kong to the People's Republic of China, thereby losing after 156 years what was considered to be one of the most important colonies in Asia. <p>Which nations are moving towards ending formal ties to the British monarchy?</p> <ul style="list-style-type: none"> The debate in some of the Commonwealth realms, including for example Australia, has led to popular movements to reposition the country in question as a republic. While Prime Minister Jacinda Ardern of New Zealand has said that her country would support King Charles, she added that it would become a republic "in time". Similarly, Prime Minister Philip Davis of the Bahamas has said he intends to conduct a referendum to remove King Charles from the role of official Head of State, thereby moving the country, which gained independence in 1973, towards being a republic. <ul style="list-style-type: none"> Governments in five other Caribbean nations — Antigua and Barbuda, Belize, Grenada, Jamaica and Saint Kitts and Nevis — have signalled their intention to act similarly. |
| World Bank and International Finance Corporation | <p>Context: Indian Finance Minister has urged the World Bank's private sector investment arm, the International Finance Corporation (IFC), to increase lending to India to more than \$2 billion in the next two years and to \$3-3.5 billion over the next three-four years.</p> <p>What Is the World Bank?</p> |

- The World Bank is an international organization dedicated to providing financing, advice, and research to developing nations to aid their economic advancement. It is headquartered in Washington, D.C.

Historical Overview:

- **The World Bank** was established in July 1944 at the **Breton Woods Conference** which was pursuing three goals:
 - facilitate reconstruction, which led to the creation of IBRD (International Bank for Reconstruction and Development)
 - ensure financial and monetary stability, which led to the creation of IMF.
 - restore and expand trade, an objective which has been more difficult to achieve. It started with the GATT and it is only in 1995 that the WTO was created.
- Thus, **the World Bank** was established in 1944 to help rebuild Europe and Japan after **World War II**. Its official name was the **International Bank for Reconstruction and Development (IBRD)**. When it first began operations in 1946, it had 38 members. Today, most of the countries in the world are members.
- The World Bank has expanded to become known as the **World Bank Group** with five cooperative organizations, sometimes known as **the World Banks**.
- The **United States is the largest single shareholder**, followed by **Japan, Germany, the United Kingdom, and France**. The rest of the shares are divided among the other member countries.

Reports published by World Bank:

- Ease of Doing Business
- World Development Report
- Global Economic Prospect (GEP) Report
- Logistics Performance Index
- Remittance Report
- Ease of Living Index
- India Development Update
- Universal Health Coverage Index
- The Service Trade Restriction Index

About: International Finance Corporation

- IFC is **the largest global development institution** focused on the private sector in developing countries.
- IFC, a **member of the World Bank Group**, advances economic development and improves the lives of people by encouraging the growth of the private sector in developing countries.
- **IFC was founded in 1956 on a bold idea:** that the private sector has the potential to transform developing countries.
- **\$31.5 billion in investment commitments in FY21:** It aim to have a positive impact on people's lives wherever we operate. they impact-rating system, called the **Anticipated Impact Measurement and Monitoring Framework**, evaluates projects based on their expected development outcomes, as well as their effect on market creation.

Shanghai Cooperation Organisation (SCO)

Context: Shanghai Cooperation Organisation (SCO) meeting in Samarkand, Uzbekistan, was a test case for governments on how to deal with current conflicts and attempt new guidelines for the future.

THE SHANGHAI COOPERATION ORGANISATION



About Shanghai Cooperation Organization (SCO):

- SCO is an intergovernmental international organisation that exists indefinitely. It was founded in 2001. The SCO Charter was signed in 2002 and took effect in 2003.
- SCO is a Eurasian political, economic, and security partnership. It is the world's largest regional organisation in terms of geographic breadth and population, spanning around 60% of Eurasia, 40% of the world population, and more than 30% of global GDP.

Structure of the SCO:

- **Heads of State Council** – The top SCO body that decides on internal SCO operations, interactions with other states and international organisations, and international concerns.
- **Heads of Government Council** – Approves the budget and evaluates and decides on topics pertaining to SCO's economic domains of engagement.
- **Council of Foreign Ministers** – Considers problems concerning day-to-day operations.
- **Regional Anti-Terrorist Structure (RATS)** – An organisation formed to combat terrorism, separatism, and extremism.



ECONOMY



IMF Bailout

In News: Sri Lanka has reached a preliminary agreement with the International Monetary Fund (IMF) for a loan of about \$2.9 billion.

How IMF lending helps?

- IMF lending aims to give countries **breathing room to implement adjustment policies in an orderly manner**, which will restore conditions for a stable economy and sustainable growth.
- IMF financing facilitates a more **gradual and carefully considered adjustment**.

Lending instruments

- The IMF's **various lending instruments are tailored to different types of balance of payments need** as well as the specific circumstances of its diverse.
- **All IMF members are eligible to access the Fund's resources in the General Resources Account (GRA) on non-concessional terms.**
- The IMF also provides concessional financial support (currently at zero interest rates through June 2021) through **the Poverty Reduction and Growth Trust** which is better tailored to the diversity and needs of low-income countries.
- Historically, for **emerging and advanced market economies in crises**, the bulk of IMF assistance has been **provided through Stand-By Arrangements (SBAs) to address short-term or potential balance of payments problems.**
- The **Standby Credit Facility (SCF)** serves a similar purpose for **low-income countries.**
- The **Extended Fund Facility (EFF)** and the corresponding **Extended Credit Facility (ECF)** for low-income countries are **the Fund's main tools for medium-term support** to countries facing protracted balance of payments problems.
- To help prevent or mitigate crises and boost market confidence during periods of heightened risks, members with already strong policies can use the **Flexible Credit Line (FCL) or the Precautionary and Liquidity Line (PLL).**
- The **Rapid Financing Instrument (RFI)** and the corresponding **Rapid Credit Facility (RCF)** for **low-income countries provide rapid assistance to countries** with urgent balance of payments need, including from commodity price shocks, natural disasters, and domestic fragilities.

Status Report on India's External Debt 2021-22

In News: The **External Debt Management Unit (EDMU)** in the Department of economic Affairs, Ministry of Finance, has released **28th edition of the Status Report on India's External Debt 2021-22.**

- India's external debt, at **US\$ 620.7 billion** as at end-March 2022, grew by **2%** over US\$ 573.7 billion as at end-March 2021.
- While **2% of it was denominated in US dollar, Indian rupee denominated debt**, estimated at **31.2%**, was the **second largest.**
- **External debt as a ratio to GDP fell marginally to 19.9 per cent as at end-March 2022 from 21.2 per cent a year ago.**
- **Foreign currency reserves as a ratio to external debt stood slightly lower at 97.8% as at end-March 2022 than 100.6 per cent a year ago.**
- **Commercial borrowings (CBs), NRIs deposits, short-term trade credit and multilateral loans together accounted for 90% of the total external debt.**
- As at end-March 2022, **sovereign external debt (SED) amounted to US\$ 130.7 billion, increasing by 17.1 per cent over the level a year ago**, reflecting the additional **allocation of SDRs** by the IMF during 2021-22.
- SDRs rose to US\$ 22.9 billion from US\$ 5.5 billion as at end-March 2021.

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| | <ul style="list-style-type: none"> • FPI holding of G-Sec, on the other hand, slid to US\$ 19.5 billion from US\$ 20.4 billion a year ago. • Non-sovereign external debt, estimated at US\$ 490.0 billion as at end-March 2022, posted a growth of 6.1 per cent over the level a year ago. |
| Human Development Index | <p>In news: A report on the 2021 Human Development Index (HDI) is part of the Human Development Report 2021-2022 released by the United Nations Development Programme.</p> <ul style="list-style-type: none"> • The HDI measures the average achievement of a country in three basic dimensions of human development — a long and healthy life, education, and a decent standard of living. • It is calculated using four indicators — life expectancy at birth, mean years of schooling, expected years of schooling, and the Gross National Income (GNI) per capita. <p>India ranked 132nd among 191 countries and territories on the 2021 Human Development Index (HDI). The decline in the country's performance from its previous level was on account of a fall in life expectancy.</p> <p>Key points:</p> <ul style="list-style-type: none"> • India's latest HDI value of 0.633 places the country in the medium human development category, lower than its value of 0.645 in the 2020 report. • The report attributes the drop in HDI from 0.645 in 2019 to 0.633 in 2021 to India's falling life expectancy — from 69.7 years to 67.2 years during the survey period. • India's expected years of schooling stand at 9 years, down from 12.2 years in the 2020 report, although the mean years of schooling is up at 6.7 years from 6.5 years in the 2020 report. • Although India retained its 132nd position in the Gender Development Index, the female life expectancy dropped from 71 years in the 2020 report to 68.8 years in the 2021 report. • The mean years of schooling for females declined from 12.6 to 11.9 years in the corresponding period. • India scored 0.123 in the Multi-Dimensional Poverty Index (MPI) with a headcount ratio of 27.9 per cent, with 8.8 per cent population reeling under severe multidimensional poverty. <p>Asian Countries: Among India's neighbours, Sri Lanka (73rd), China (79th), Bangladesh (129th), and Bhutan (127th) are ranked above India, while Pakistan (161st), Nepal (143rd), and Myanmar (149th) are worse off.</p> |
| Natural Rubber | <p>Context: Recently, under the aegis of the National Consortium of Regional Federations of Rubber Producer Societies India, an umbrella organisation for rubber growers, a day-long sit-in protest was staged in front of the Rubber Board headquarters in Kottayam, Kerala.</p> <ul style="list-style-type: none"> • India is currently the world's fifth largest producer of natural rubber while it also remains the second biggest consumer of the material globally. <p>About Rubber Board:</p> <ul style="list-style-type: none"> • The Rubber Board is a statutory organization constituted under Section (4) of the Rubber Act, 1947 and functions under the administrative control of Ministry of Commerce and Industry. • The Board is headed by a chairman appointed by the Central Government and has 28 members representing various interests of natural rubber industry. • The Board's headquarters is located at Kottayam in Kerala. • Kerala alone accounts for nearly 75% of the total production. • The Board is responsible for the development of the rubber industry in the country by way of assisting and encouraging research, development, extension, and training activities related to rubber. |

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| | <ul style="list-style-type: none"> It also maintains statistical data of rubber, takes steps to promote marketing of rubber and undertake labour welfare activities. The activities of the Board are exercised through Five Departments General Services, Extension & Advisory Services, Research Services (rubber Research Institute of India), Training (Rubber Training Institute) & Finance. <ul style="list-style-type: none"> There are 5 independent divisions viz., Internal audit, Planning, Market Promotion, Publicity & Public Relations, Vigilance. |
| Shrinkflation | <p>What is Shrinkflation?</p> <ul style="list-style-type: none"> Shrinkflation is the practice of reducing the size of a product while maintaining its sticker price. It is a form of hidden inflation. Shrinkflation is also referred to as package downsizing in business and academic research. A less common usage of this term may refer to a macroeconomic situation where the economy is contracting while also experiencing a rising price level. <div> <p>The diagram shows a transition from a larger bottle on the left to a smaller bottle on the right. Above the left bottle is the text '2 liters' and below it is '\$5'. Above the right bottle is the text '1.75 liters' and below it is '\$5'. An orange arrow points from the left bottle to the right bottle, with the word 'Shrinkflation' written above it.</p> </div> <p>What are the Major Causes of Shrinkflation?</p> <ul style="list-style-type: none"> Higher Production Costs: Rising production costs are generally the primary cause of shrinkflation. <ul style="list-style-type: none"> Increases in the cost of ingredients or raw materials, energy commodities, and labour increase production costs and subsequently diminish producers' profit margins. Reducing the products' weight, volume, or quantity while keeping the same retail price tag can improve the producer's profit margin. Intense Market Competition: Fierce competition in the marketplace may also cause shrinkflation. <ul style="list-style-type: none"> The food and beverage industry are generally an extremely competitive one, as consumers are able to access a variety of available substitutes. Therefore, producers look for options that will enable them to keep the favour of their customers and maintain their profit margins at the same time. |
| LoRa (Long Range Radio) technology | <p>In News: The Institute for Development and Research in Banking Technology (IDRBT) develops a new low-cost financial network called LoRa (Long Range Radio) technology to take banking to remote areas. They are the first in the world to develop this network.</p> <p>The Mechanics:</p> <ul style="list-style-type: none"> LoRa or Long-Range Radio technology is a wireless modulation technique which allows long-range communication using chirp spread spectrum. It uses dedicated radios and limits interferences from other devices. Presently, banks use a third-party network which based either on satellite link or wired (fibre) |

- Now, banks can use this technology as their **own private network** and **send encrypted texts** to conduct financial transactions.
- **Connectivity to remote areas** begins from where the last branch of a bank stands in a remote village or hilly region.
- A **30-mile connectivity** for bank transactions can be achieved at a **cost of ₹30,000** and the same is extendable.

Significance:

- **Last mile connectivity:** it will be possible for people in remote hilly and forest areas without satellite signal to access banking services.
- **More secure:** better safety from cyber attacks
- **Cheaper:** estimated to be **20% cheaper** than alternative network technologies
- **Easy recoverability and upgradation**
- Almost **no maintenance** & ensures **portability of devices**.

About IDRBT:

- It is an **engineering training institution exclusively focused on banking technology**.
- Established by the **RBI** in **1996**, the institution works at the intersection of banking and technology.
- Its foundations were laid by the **Rangarajan Committee**
- It is located in **Hyderabad**, India.

Basel III Norms

In News: Fundraising via Basel III-compliant and infrastructure bonds seen continuing over next few months, say analysts.

What is the Basel Framework:

- The Basel Framework are **capital regulations** developed by the **Basel Committee on Banking Supervision (BCBS)** in response to the deficiencies in financial regulation revealed by the **financial crisis of 2007–08**.
- **Objective:** To improve the banking sector's ability to absorb shocks arising from financial and economic stress, to reduce the risk of spill over from the financial sector to the real economy, to raise capital standard and to implement strong international compensation standards aimed at ending practices that lead to excessive risk-taking
- They were first enforced in the G-10 countries in 1992.

Evolution:

Basel I

- Adopted in 1999
- It defined capital and structure of risk weights for banks and focussed on **credit risk**
- Minimum capital requirement fixed at 8% of risk-weighted assets (RWA)

Basel II

- Adopted in 2004
- It defined three types of risk as – operational risk, market risk, capital risk

- Its 3 pillars were as follows:

About Basel III norms:

- The new standards will come into effect on January 2023
- **Risk-based capital requirements (RWAs)** and **interest rate risk** were introduced for the first time.
- The new standards aim at **increasing capital requirements**, it **introduces requirements on liquid asset holdings and funding stability**
- **Key difference between the Basel II and Basel III:** Basel III framework prescribes more of common equity, creation of capital buffer, introduction of Leverage Ratio, Introduction of Liquidity coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR).
- **Leverage Ratio:** The leverage ratio is calculated by dividing Tier 1 capital by the bank's average total consolidated assets. Banks are expected to maintain a leverage ratio **in excess of 3%** under Basel III
- **Liquidity Coverage Ratio:** The liquidity coverage ratio (LCR) denotes to highly liquid assets held by financial institutions to meet short-term obligations. The LCR is a requirement under Basel III for a bank to hold high-quality liquid assets (HQLAs) sufficient to cover 100% of its stressed net cash requirements over 30 days. The LCR is calculated as: $LCR = \frac{HQLAs}{Net\ cash\ outflows}$.
- **Net stable funding (NSF):** The net stable funding is to ensure that banks maintain a stable funding profile in relation to the composition of their assets and off-balance sheet activities.

About Basel III compliant Bonds:

- The bonds qualify as tier II capital of the bank, and has a **face value of Rs 10 lakh each, bearing a coupon rate of 6.24 per cent per annum** payable annually for a tenor of 10 years.
- There is a call option after 5 years and on anniversary thereafter.
- Call option means the issuer of the bonds can call back the bonds before the maturity date by paying back the principal amount to investors.

Fund of Funds for Start-up India Investment scheme

In news: Govt commits Rs. 7,385 crores under **Fund of Funds for Start-up India** Investment scheme for 88 Alternative Investment Funds (AIFs) and 720 start-ups supported by AIFs.

About: **Fund of Funds for Start-ups (FFS)** was launched under **Start-up India initiative** in 2016.

- **Small Industries Development Bank of India (SIDBI)** is responsible for operationalising the scheme. It has undertaken a series of reforms to expedite the drawdowns.
- **Corpus of funds:** FFS was announced with a corpus of **Rs. 10,000 cr.**, to be built up through budgetary support by DPIIT, Ministry of Commerce & Industry
- **Methodology:** FFS supports SEBI registered AIFs, which in turn invest in start-ups.

Significance:

- It has also played a catalytic role in terms of **reducing dependence on foreign capital and encouraging home grown and new venture capital funds**.
- **Innovation** created will **remain within the country** and facilitate generation of **employment and creation of wealth**.

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| | <ul style="list-style-type: none"> • Unicorn status (valuation of over USD 1 billion) has been achieved by start-ups funded through FFS like Dunzo, CureFit, FreshToHome, Jumbotail, Unacademy, Uniphore, Vogo, Zostel, Zetwerk etc., <p>About Alternative Investment Fund (AIF):</p> <ul style="list-style-type: none"> • It means any fund established or incorporated in India which is a privately pooled investment vehicle which collects funds from sophisticated investors, whether Indian or foreign, for investing it in accordance with a defined investment policy for the benefit of its investors. • Applicants can seek registration as an AIF in one of the following categories, • Category I AIF: Venture capital funds (Including Angel Funds), SME Funds, Social Venture Funds, Infrastructure funds • Category II AIF • Category III AIF • Fund of Funds is an investment strategy of holding a portfolio of other investment funds rather than investing directly in stocks, bonds or other securities. In the context of AIFs, a Fund of Fund is an AIF which invest in another AIF. |
| Malthusian trap | <p>In News: Malthus' idea has often been cited by modern environmentalists and others who believe that rising human population puts unsustainable pressure on earth's resources.</p> <p>About Malthusian trap:</p> <ul style="list-style-type: none"> • The Malthusian trap is a theory of population that says as the human population grows there is unsustainable pressure on earth's resources, which in turn acts as a check on the further rise in population. • It is named after English economist Thomas Malthus who elaborated on the concept in his 1798 book An Essay on the Principle of Population, which also inspired Charles Darwin. • While rise in food production in a country can led to improved living standards for the general population, the benefit is likely to be temporary. This is because, Malthus argued, increasing availability of food would encourage people to have more kids since they could afford to feed them now, thus leading to a rise in the total population and a drop in per capita income levels. • The Malthusian trap was at the core of the Simon-Ehrlich wager in 1980. While Ehrlich, like Malthus, argued that there are natural limits to economic growth; Simon argued that private property rights and the price mechanism in a market economy offered tremendous incentives for people to use scarce resources carefully and to come up with innovations and living standards could rise along with increasing population levels. <p>How it works:</p> <ul style="list-style-type: none"> • In the pre-modern age, whenever there was a rise in food production, it caused per capita income to rise for a while as long as population levels remained stable. • However, the population of the country rose quite quickly which ensured that per capita income decreased and returned to its historical trend. • Whenever food production dropped on the other hand, there was famine which caused the death of a large number of people. The drop in human population continued until the country's per capita income rose to subsistence levels. • Either way, resource constraints kept a check on human population. |



HISTORY AND ART & CULTURE

Martand Temple

In News: In May this year, some pilgrims offered prayers inside the Martand Temple, an Archaeological Survey of India-protected (ASI) monument.

- Soon after, J&K Lieutenant Governor participated in a 'Navgrah Ashtamangalam Puja' on the premises.
- The ASI objected to this, saying no permission was granted for the ceremony.

About the Temple: The Martand Temple was built by the Karkota dynasty king Lalitaditya Muktapida, who ruled Kashmir from 725 AD to 753 AD.

- Lalitaditya built his capital at Parihaspora, the ruins of which also survive to this day.
- Dedicated to Vishnu-Surya, the Martand Temple has three distinct chambers—the mandapa, the garbhagriha, and the antrala—probably the only three-chambered temple in Kashmir.
- The temple is built in a unique Kashmiri style, though it has definite Gandhar influences."
- A major historical source for Kashmir's history remains Rajatarangini, written in the 12th century by Kalhana, and various translations of the work contain descriptions of Martand's grandeur.

A confluence of architectural style

- From the ruins of the temple, it is evident that the complex originally consisted of a principle shrine at the centre of a quadrangular courtyard, flanked towards the north and south by two small structures.
- The central courtyard was initially filled with water supplied by a canal from river Lidar to a level which immersed almost one foot of the base of the columns.
- This courtyard was enclosed by a colonnade, which seem to have consisted of 84 pillars.
- The temple is influenced by Classical Greco-Roman, Buddhist-Gandharan, and North Indian styles.
- Lalitaditya is known to have subjugated the king of Kannauj, which can be one of the reasons for North Indian workers building his temple.

Destruction of Martand Temple

- Many historians believe Sultan Sikandar 'Butshikan' (iconoclast) was behind it, others blame earthquakes, faults in the temple's masonry, and the simple passage of time in an area prone to weather excesses.
- One of the main sources that hold Sikandar responsible, is the work of poet-historian Jonaraja—who wrote the 'Dvitiya', or second, Rajatarangini.
- There are reports that the temple appears to have been destroyed by earthquakes, friable nature of the material used, frost and snow causing natural weathering, and improper fitting of stones at their joints.

Why Harsha broke temples:

- Three centuries after Lalitaditya and two centuries before Sikandar existed a Hindu king known for destroying and desecrating temples: King Harsha (1089 AD to 1101 AD) of the first Lohara dynasty.

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| | <ul style="list-style-type: none"> Harsha's actions against the temples had nothing to do with religion—he was simply a profligate king who ran out of money and began looting temples for treasure and for the precious metals of the idols. However, Harsha appears to have spared the Martand Temple, where a few years before, his father had drawn his last breath. |
| Hyderabad State Liberation Day | <p>In News: The Centre has decided to mark Hyderabad State Liberation Day on September 17.</p> <ul style="list-style-type: none"> The Telangana Government has decided to observe September 17 as Telangana National Unity Day. <p>History and Significance:</p> <ul style="list-style-type: none"> On September 17, 1948, more than one year after India got Independence, the erstwhile state of Hyderabad, comprising the entire state of Telangana and some districts in Maharashtra and Karnataka, got liberated from the Nizam rule. This was possible due to the swift and timely action of Sardar Vallabhbhai Patel under Operation Polo. The struggles of the people of erstwhile Hyderabad state against colonialism, feudalism and autocracy are a symbol of national integration. <p>Operation Polo</p> <ul style="list-style-type: none"> The signing of the Standstill Agreement, however, ensured peace for only about a year. Almost instantly, Hyderabad started violating the conditions, simultaneously the violent activities of the Razakars increased, creating an atmosphere of anarchy in the state. As a last resort, India launched 'Operation Polo' in September 1948 and defeated the rebel forces within five days to make Hyderabad an integral part of India. <p>Telangana rebellion:</p> <ul style="list-style-type: none"> The Telangana rebellion was started by a group of peasants in late 1945, against the prevalent jagirdari system where power to collect revenue and govern certain landholdings was installed in certain officers. Represented by the Comrades Association, who were affiliated with the Communist Party of India, the rebellion turned violent and clashed with the Razakars, a militia headed by Kasim Rizvi. In 1945 Nizam of Hyderabad put forward multiple conditions to join India — all of which were unacceptable to the Indian state In the meantime, Kasim Rizvi and his Razakars became increasingly dominating, difficult to ignore presence in Hyderabad. He influenced all major decisions the Nizam undertook and installed his chosen men in the government. In order to ensure that Hyderabad's already deteriorating law and order condition did not worsen further, India signed the Standstill Agreement with Hyderabad, stating that all administrative agreements that were in place between the Nizam and the British Crown would continue between the Nizam and India. |
| O. Chidambaram Pillai | <p>In News: The Prime Minister, paid tributes to freedom fighter V. O. Chidambaram Pillai on his birth Anniversary.</p> <p>About V. O. Chidambaram Pillai</p> <ul style="list-style-type: none"> Vallinayagam Olaganathan Chidambaram Pillai (VOC) was born 5th September 1872 to an eminent lawyer Olaganathan Pillai and Paramyee Ammai in Ottapidaram, Tirunelveli district of Tamil Nadu. |

- VOC graduated from **Caldwell College, Tuticorin**. Before beginning his law studies, he worked for a brief period as the taluk office clerk.



Entry in Politics:

- VOC entered politics in **1905** following the **partition of Bengal**.
- Towards the end of 1905, VOC visited Madras and was drawn closer to the **Swadeshi Movement**.
- VOC was drawn towards **Ramakrishna Mission** and came into contact with **Subramania Bharati and the Mandayam family**.
- It was not until the arrival of VOC at Tuticorin that the Swadeshi movement in Tirunelveli district began to gather force and momentum.

Role Played in Freedom Movement:

- By 1906, VOC won the support of merchants and industrialists in Tuticorin and Tirunelveli for the idea of **establishing a Swadeshi merchant shipping outfit** by the name of the **Swadeshi Steam Navigation Company (SSNCo)**.
- He established many institutions like **Swadeshi Prachar Sabha, Dharmasanga Nesavu Salai, National Godown, Madras Agro-Industrial Society Ltd and Desabimana Sangam**.
- VOC was aided in his efforts by a number of Tirunelveli-based lawyers, who formed an **organisation called the Swadeshi Sangam, or 'National Volunteers'**.
- The nationalist movement acquired a secondary character with the beginning of the **Tuticorin Coral Mills strike (1908)**.
- Even prior to Gandhiji's Champaran Satyagraha (1917), VOC took up the cause of the working class in Tamil Nadu, and thus he is a forerunner to Gandhiji in this respect.
- VOC, along with other leaders, resolved to take out a **mammoth procession** on the morning of 9th March 1908 to celebrate the **release of Bipin Chandra Pal from jail and to hoist the flag of Swaraj**.

Writings: Meyyaram (1914), Meyyarivu (1915), Anthology (1915), Thirukural with literary notes of Manakudavar (1917), Tholkappiam with literary notes of Ilampooranar (1928), Autobiography (1946).

Death: V.O.C died on 18th November 1936 in the Indian National Congress Office at Tuticorin as was his last wish.

Mohenjo-Daro

In News: The recent spell of **heavy rains and floods that ravaged large parts of Pakistan's Sindh province** has also taken a heavy toll on the archaeological site of Mohenjo-daro.

Mohenjo-daro

- A 5000-year-old archaeological site located about 80-km off the city of Sukkur.
- It comprises the remnants of the ancient Indus Valley Civilisation.
- Mohenjo-daro, which means '**mound of the dead**', was **one of the oldest cities of the world**.

- The ruins of the city remained undocumented for around 3,700 years, until 1920, when archaeologist **RD Banerji** visited the site.
- It is on the right bank of the **Indus River**.
- The **Great Bath** is the most well-known **structure of Mohenjo-daro**. It is a 612 metre long brickwork masterpiece.
- The **greatest construction of the Mohenjo-daro period has been discovered: a granary**. This granary consists of 27 chambers of various sizes and shapes.
- Another important structure at Mohenjo-daro is the **Assembly Hall**, which is a square pillared hall measuring 90X90 feet. Scholars agree that this pillared hall served as a social meeting place.

Notable artefacts:

- Artefacts like **ivory, lapis, carnelian, and gold beads**, as well as the baked-brick city buildings, demonstrate the city's richness and prominence.
- One of the most fascinating figures from the IVC is the sculpture titled '**Mother Goddess**'.
- The **Priest-King is a steatite sculpture** of a tiny man figure discovered at Mohenjo-daro, a destroyed Bronze Age city.
- **Dancing Girl is a prehistoric bronze sculpture** created in **lost-wax casting** around 2300–1750 BC at Mohenjo-daro.
- The **Pashupati Seal**, for which the term "so-called" is often used, is a steatite seal.
- Some academics see the image as a yogi, while others see it as a three-headed "**proto-Shiva**" who rules over the animals.

Decline of Mohenjo-daro:

- The evidence implies that **Mohenjo-daro saw many severe floods** of unusual depth and duration, **owing not only to the approaching Indus**.
- But also, to **structural uplifts between Mohenjo-daro and the sea**, which caused the Indus drainage to pond back.



Can the sites be removed from the World Heritage List?

- **Arabian Oryx Sanctuary in Oman**: Removed in 2007, after concerns over poaching and habitat degradation
- **Liverpool – Maritime Mercantile City' (UK)** – One of the world's major trading centres in the 18th and 19th centuries – famous for its pioneering dock technology, transport systems and port management.
- **Elbe Valley in Dresden, Germany**: After the construction of the Waldschloesschen road bridge across the Elbe River.

Ramon Magsaysay Award

In News: The **Ramon Magsaysay Award Foundation** had picked former Kerala health minister **K K Shailaja** for the 64th Magsaysay award. However, the ex-minister has turned down the award on following ground:

Ramon Magsaysay Award:

- Launched in 1958, the **Ramon Magsaysay Award** is widely considered to be **Asia's equivalent to the Nobel Prize**.
- The award is given to **individuals and organisations** in Asia for selfless service to society in various fields.
- The award was **set up by trustees of the Rockefeller Brothers Fund and the Philippine government** to carry forward Magsaysay's legacy of service to the people, good governance, and pragmatic idealism.
- The award is given out **every year on August 31, on Magsaysay's birth anniversary**.
- The awardees are presented with a certificate and a medal with an image of Ramon Magsaysay.

Who was Ramon Magsaysay?

- Ramon del Fierro Magsaysay Senior was the **seventh president of the Philippines**, from 1953 until his death in an air crash in 1957.
- He came to prominence during the **2nd world war when Japanese forces occupied the Philippines** — then a colony of the US — for nearly four years.
- In December, 1953, he was elected president from the Nationalist Party, the oldest political party in the Philippines.

What is the link between Communism and Magsaysay

- Philippines plunged into post-war chaos after 1946. Also, during this period, with the **expansion of capitalism**, the gap between the rich and poor widened and the farmers continued to languish.
- As the country was a **close ally of USA**, many leaders were viewed with suspicion over **their declaration of commitment to communism** and the demand for peasant rights.
- The then **government of Philippines** started severe crackdown on these leaders.
- It was under the **administrative and military policies of Magsaysay** that the threat from communism was considered to be neutralised.

Indian winners on the list:

- Prominent Indians who have won the award include **Vinoba Bhave** in 1958, **Mother Teresa** in 1962, **Kamaladevi Chattopadhyay** in 1966, **Satyajit Ray** in 1967, **Mahasweta Devi** in 1997.
- In recent years, **Arvind Kejriwal** (2006), **Anshu Gupta of Goonj** (2015), human rights activist **Bezwada Wilson** (2016), and journalist **Ravish Kumar** (2019) have won the award.

Dara Shikoh

In News: Vice President calls Dara Shikoh as torchbearer of social harmony.

About Dara Shikoh:

- He (1615-59) was the **eldest son of Shah Jahan**.
- He is described as a **"liberal Muslim"** who tried to find commonalities between Hindu and Islamic traditions.
- He is known as a **pioneer of the academic movement for interfaith understanding in India**.
- He had a deep **understanding and knowledge of major religions, particularly Islam and Hinduism**.
- He was inclined **towards philosophy and mysticism over military pursuits in comparison to Aurangzeb**.

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| | <ul style="list-style-type: none"> • In 1655, his father declared him the Crown Prince, but was defeated by Aurangzeb, his younger brother, in 1657 after Shah Jahan fell ill. • He was assassinated by Aurangzeb, in a bitter struggle for the throne on 30th August, 1659 when he was 44. <p>Works:</p> <p>Connection between Hinduism and Islam:</p> <ul style="list-style-type: none"> • His most important works, Majma-ul-Bahrain (Mingling of Two Oceans) and Sirr-i-Akbar (Great Mystery), are devoted to the cause of establishing connections between Hinduism and Islam. <p>Promotion of Indian Culture:</p> <ul style="list-style-type: none"> • He acquired proficiency in Sanskrit and Persian, which enabled him to play a key role in popularising Indian culture and Hindu religious thought. • He translated the Upanishads and other important sources of Hindu religion and spirituality from Sanskrit to Persian. Through these translations, he was responsible for taking the Hindu culture and spiritual traditions to Europe and the West. |
| Hoysala Temples | <p>In News: An expert team will visit the Hoysala temples at Belur, Halebid and Samanathpur this week before submitting a report to UNESCO ahead of declaring them as World Heritage Site.</p> <ul style="list-style-type: none"> • This includes Chennakeshava temple at Belur, The Hoysaleshwara temple at Halebid (together “The Sacred Ensembles of the Hoysalas”) and the 13th century Keshava temple at Somnathpur. <p>Criteria for declaration as World Heritage Site by UNESCO</p> <p>Nominated sites must be of “outstanding universal value” and must meet at least one of the following ten criteria</p> <ul style="list-style-type: none"> • To represent a masterpiece of human creative genius • To exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design • To bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living, or which has disappeared • To be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history” • To be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change • To be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance • To contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance • To be outstanding examples representing major stages of earth’s history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features • To be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals |

- To contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

Salient features of Hoysala form of Architecture:

- Hoysala temples are hybrid or **vesara** style temples because of amalgamation of Dravidian and Nagara styles.
- **Multiple shrines** of different deities around a central pillared hall.
- **Stellate plan** wherein the shrines are established intricately in the design of a star.
- Soft soapstone being the main building material.
- **Decoration of the temple through sculptures** – Both the interior and exterior walls, even the pieces of jewellery worn by the deities were intricately carved.
- Upraised platform known as **Jagati**.
- The walls and stairs of the temple followed a **zigzag pattern**.

Chennakeshava temple of Somnathpur, Karnataka

- It is a **Vaishnava** Hindu temple on the banks of **River Kaveri**
- The temple was constructed in 1258 CE by Somanatha **Dandanayaka**, a general of the Hoysala King **Narasimha III**.
- The ornate temple is a model illustration of the **Hoysala architecture**. T
- The temple is enclosed in a courtyard with a pillared corridor of small shrines (damaged).
- The main temple in the centre is on a high **star-shaped platform** with three symmetrical sanctums (**garbha-griha**). The sanctums share a common community hall (**Sabha-mandapa**) with many pillars.
- The outer walls, the inner walls, the pillars and the ceiling of the temple are intricately carved with **theological iconography of Hinduism** and display **Ramayana**, the **Mahabharata** and **Bhagavata Purana**

International Commission on Monuments and Sites (ICOMOS):

- It is a professional association that works for the **conservation and protection of cultural heritage places** around the world.
- Headquartered in Charenton-le-Pont, France, ICOMOS was founded in 1965 in Warsaw as a result of the Venice Charter of 1964, and offers advice to UNESCO on World Heritage Sites.
- **Objectives:** Restoration of historic buildings and protect the world's cultural heritage threatened by wars and natural disasters under "Blue Shield"; of which ICOMOS is a partner and founding member

Acharya Vinoba Bhave

Context: The Prime Minister of India has paid tributes to Acharya Vinoba Bhave on his Jayanti (September 11).

About Vinoba Bhave:

- Vinoba Bhave (1895-1982) was an Indian nationalist and social-reform leader.
- Bhave's most notable contribution was the creation of the **bhoodan (land gift) movement**.
- He was born into a high-ranking Chitapavan Brahmin family in Gagode village, south of Bombay.

Bhave and Mahatma Gandhi:

- Vinayak Bhave was renamed with the affectionate diminutive "**Vinoba**" by **Mahatma Gandhi**.
- He was associated with Mahatma Gandhi in the Indian independence movement.
- He stayed for some time at Gandhi's Sabarmati ashram in a cottage that was named after him, '**Vinoba Kutir**'.

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| | <ul style="list-style-type: none"> In 1940 he was chosen by Gandhi to be the first individual Satyagrahi (an individual standing up for Truth instead of a collective action) against the British rule. <p>Sarvodaya and Bhoodan movement:</p> <ul style="list-style-type: none"> Bhave observed the life of the average Indian living in a village and tried to find solutions for the problems he faced with a firm spiritual foundation. This formed the core of his Sarvodaya movement. Another example of this is the Bhoodan (land gift) movement started at Pochampally on 18 April 1951. He walked all across India asking people with land to consider him one of their sons and so gave him one-sixth of their land which he then distributed to landless poor. He also campaigned against the slaughtering of cows. <p>Awards:</p> <ul style="list-style-type: none"> In 1958 Bhave was the first recipient of the international Ramon Magsaysay Award for Community Leadership. He was awarded the Bharat Ratna posthumously in 1983. <p>Literary works:</p> <ul style="list-style-type: none"> He called “Kannada” script the “Queen of World Scripts” He wrote brief introductions to, and criticisms of, several religious and philosophical works like: <ul style="list-style-type: none"> the Bhagavad Gita, works of Adi Shankaracharya, the Bible the Quran. Bhave had translated the Bhagavad Gita into Marathi. |
| Swami Vivekananda | <p>Context: The Prime Minister recalled the “special connection” Vinoba Bhave Jayanti on September 11 has with Swami Vivekananda, noting that the renowned spiritual figure had delivered his famous speech in Chicago on this day in 1893.</p> <p>About Swami Vivekananda:</p> <ul style="list-style-type: none"> He pushed for national integration in colonial India, and his famous speech remains as the one that he gave in Chicago in 1893 (Parliament of the World Religions). In 1984 the Government of India declared that 12 January, the birthday of Swami Vivekananda, will be celebrated as National Youth Day. <p>Early life- contributions:</p> <ul style="list-style-type: none"> Born in Kolkata on January 12, 1863 in Kolkata, Swami Vivekananda was known as Narendra Nath Datta in his pre-monastic life. He is known to have introduced the Hindu philosophies of Yoga and Vedanta to the West. Netaji Subhas Chandra Bose had called Vivekananda the “maker of modern India.” In 1893, he took the name ‘Vivekananda’ after Maharaja Ajit Singh of the Khetri State requested him to do so. He formed the Ramakrishna Mission in 1897 “to set in motion a machinery which will bring noblest ideas to the doorstep of even the poorest and the meanest.” In 1899, he established the Belur Math, which became his permanent abode. He preached ‘neo-Vedanta’, an interpretation of Hinduism through a Western lens, and believed in combining spirituality with material progress. |

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| | <ul style="list-style-type: none"> • Death: He died at Belur Math in 1902. Belur Math, located in West Bengal, is the headquarters of Ramakrishna Math & Ramakrishna Mission. <p>Books written by him:</p> <ul style="list-style-type: none"> • ‘Raja Yoga’, ‘Jnana Yoga’, ‘Karma Yoga’ are some of the books he wrote. |
| <p>Annabhau Sathe</p> | <p>Context: Maharashtra’s Deputy Chief Minister, and Assembly Speaker are in Moscow to unveil the statue of Lok Shahir (balladeer) Annabhau Sathe at the All-Russia State Library for Foreign Literature.</p>  <p>Who was Annabhau Sathe?</p> <ul style="list-style-type: none"> • Tukaram Bhaurao Sathe, who later came to be known as Annabhau Sathe, was born in a Dalit family on August 1, 1920 in Maharashtra’s Wategaon village in Satara district. • In 1934, Mumbai witnessed a workers’ strike under the leadership of Lal Bawta Mill Workers Union in which he participated. • During his days at the Matunga Labour Camp, he got to know R B More, an associate of Dr Babasaheb Ambedkar in the famous ‘Chavdar Lake’ satyagraha at Mahad, and joined the labour study circle. • Being a Dalit, he was denied schooling in his village. It was during these study circles that he learned to read and write. <p>How did he start writing songs, ballads, and books?</p> <ul style="list-style-type: none"> • Sathe wrote his first poem on the menace of mosquitoes in the labour camp. • He formed Dalit Yuvak Sangh, a cultural group and started writing poems on workers’ protests, agitations. • He was part of Progressive Writers Association in which poets like Premchand, Faiz Ahmad Faiz, Manto, Ismat Chughtai, Rahul Sankrityayan, Mulkraj Anand worked as its members. • In 1939, he wrote his first ballad ‘Spanish Povada’. <p>How popular was his work?</p> <ul style="list-style-type: none"> • Several of his works like ‘Aklechi Goshta,’ ‘Stalingradacha Povada,’ ‘Mazi Maina Gavavar Rahili,’ ‘Jag Badal Ghaluni Ghav’ were popular across the state. • His ‘Bangalchi Hak’ (Bengal’s Call) on the Bengal famine was translated into Bengali and later presented at London’s Royal Theatre. • In 1943, he along with Amar Sheikh and Datta Gavhankar, formed the Lal Bawta Kala Pathak. The group toured across Maharashtra presenting programmes on caste atrocities, class conflict, and workers’ rights. • In 1943, he was part of the process that led to the formation of the Indian Peoples Theatre Association (IPTA). He became its national president in 1949. <p>What was his Russian connection?</p> |

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| | <ul style="list-style-type: none"> • He was a member of the Communist Party of India (CPI), and featured among the selected authors from India whose work was translated in Russian. • Sathe's literature is closely related to the then Communist Russian literature which was a mixture of reality and art. • Six of his novels were turned into films and many translated into other languages, including Russian (Chitra or his famous Stalingradcha Povada on the battle of Stalingrad battle) • In his travelogue 'Maza Russiacha Pravas' (My Travel to Russia), he writes that workers had come to see him off and how they wanted him to go and see slums of Russia and describe them after his return home. |
| Arattupuzha Velayudha Panicker | <p>In News: Recently-released Malayalam film Pathonpatham Noottandu ('Nineteenth Century') is based on the life of Arattupuzha Velayudha Panicker and on the stories of Nangeli and Kayamkulam Kochunni – associated with social reform in 19th-century Kerala which led to the large-scale subversion of the existing caste hierarchy and social order in the state.</p> <p>About Arattupuzha Velayudha Panicker:</p> <ul style="list-style-type: none"> • He was a social reformer from the Ezhava community in Kerala who lived in the 19th century. • He was born into a well-off family of merchants in Kerala's Alappuzha district. • One of the most influential figures in the reformation movement in the state, he challenged the domination of upper castes or 'Savarnas' and brought about changes in the lives of both men and women. <p>Contribution of Panicker:</p> <ul style="list-style-type: none"> • Built two temples dedicated to the Hindu god Shiva in villages of Kerala in 1852-54, in which members of all castes and religions were allowed entry. • Protested for the rights of women belonging to Kerala's backward communities. • Panicker was a master of Kalaripayattu, the traditional martial arts practised in Kerala, which is also considered the oldest of its kind in India. • Nangeli, an Ezhava woman who lived in the 19th century in Alappuzha cut off her breasts to protest the 'breast tax' imposed by the Kingdom of Travancore on women belonging to lower castes. As per the breast tax – women from lower castes were not allowed to cover their breasts and were taxed heavily if they did so. • Kayamkulam Kochunni, a Robin Hood-like figure in 19th century Alappuzha, has a shrine dedicated to him and a small museum as well. |
| Periyar E.V. Ramasamy | <p>Context: We celebrate Periyar E.V. Ramasamy's birth anniversary (September 17) as Social Justice Day.</p> <p>About Periyar:</p> <ul style="list-style-type: none"> • Born E.V. Ramaswamy Naicker in 1879 in Erode district of Tamil Nadu (TN). He quarrelled with Gandhi over the question of separate dining for Brahmin and non-Brahmin students in Congress Party. • He resigned from the party in 1925, and associated himself with the Justice Party and the Self Respect Movement, which opposed the dominance of Brahmins in social life, especially the bureaucracy. • Periyar's fame spread beyond the Tamil region during the Vaikom Satyagraha of 1924, a mass movement to demand that lower caste persons be given the right to use a public path in front of the famous Vaikom temple. He would later be referred to as Vaikom Veerar (Hero of Vaikom). • In the 1940s, Periyar launched a political party, Dravidar Kazhagam (DK), which espoused an independent Dravida Nadu comprising Tamil, Malayalam, Telugu, and Kannada speakers. |

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| | <ul style="list-style-type: none"> Periyar died in 1973 at the age of 94. Over the years, Periyar is revered as Thanthai Periyar, the father figure of modern Tamil Nadu. <p>About Self Respect Movement :</p> <ul style="list-style-type: none"> Self-Respect Movement was a dynamic social movement aimed at destroying the contemporary Hindu social order in its totality and creating a new, rational society without caste, religion, and God. The movement was started in Tamil Nadu in 1925. <ul style="list-style-type: none"> It was an egalitarian movement that propagated the ideologies of breaking down of the Brahminical hegemony, equal rights for the backward classes and women in the society and revitalization of the Dravidian languages like Telugu, Tamil, Kannada, and Malayalam. <p>Social justice and Periyar:</p> <ul style="list-style-type: none"> Social justice is the view that everyone deserves equal economic, political, and social rights and opportunities. Social workers aim to open the doors of access and opportunity for everyone, particularly those in greatest need. Social justice and rationality define “the best possible version of truth” for a large majority of people. (The quality of being based on or in accordance with reason or logic.) <p>Foundation of rationalism :</p> <ul style="list-style-type: none"> Periyar’s vision was about inclusive growth and freedom of individuals. He presented rationalism as a solid foundation for thinking along these lines. He said, “Wisdom lies in thinking. The spearhead of thinking is rationalism.” Periyar said, “Any opposition not based on rationalism or science or experience, will one day or other, reveal the fraud, selfishness, lies, and conspiracies.” We can posit this with regard to the extreme-right activities we see happening across the country and sometimes abroad too. All the reforms he shared with people could not be implemented at the time because of the searing discussions they led to. One such reform measure he felt was needed to change the caste dynamic in society was ‘Priesthood for all castes’. |
| Salar Jung Museum | <p>In News: A 14th century ceremonial sword that was sold in Hyderabad to a British General in the early 20th century is set to return to India.</p> <ul style="list-style-type: none"> The sword, shaped like a snake, has serrated edges and a damascene pattern, with gold etchings of an elephant and tigers. The sword was exhibited by Nizam of Hyderabad (1896-1911) at the 1903 Delhi Durbar (a ceremonial reception held to commemorate the coronation of King Edward VII and Queen Alexandra as Emperor and Empress of India) The tulwar (sword) was purchased in 1905 by a British General from Maharaja Sir Kishen Pershad, the Prime Minister of Hyderabad. Kishen Pershad was known for his munificence where he was known to throw out coins to people chasing his motorcar. <p>History of Salar Jung Museum:</p> <ul style="list-style-type: none"> The Salar Jung Museum was established in the year 1951 and is located on the southern bank of the river Musi in Hyderabad, Telangana State of India. The family is one of the most illustrious families in Deccan history, five of them having been prime-ministers in the erstwhile Nizam rule of Hyderabad-Deccan. Nawab Mir Yousuf Ali Khan, popularly known as Salar Jung III was appointed prime minister by Nawab Mir Osman Ali Khan Nizam VII in 1912. |

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| | <ul style="list-style-type: none"> The collection in the form of a museum was declared open in 1951 in Dewan Deodi, home of late Salar Jung's and was opened to the public by Pandit Jawaharlal Nehru, the first Prime Minister of India. Later the Government of India with the consent of the family members took over the Museum formally through a compromise deed and the museum was administered by the Ministry of Scientific Research and Cultural Affairs, Government of India. Finally, in 1961, through an "Act of Parliament" the Salar Jung museum along with its library was declared an "Institution of National Importance". |
| Ambedkar Tourist Circuit | <p>In News: The Central government has announced a special tourist circuit encompassing five key sites associated with Dr. B.R. Ambedkar</p> <p>The Five Key Sites – The "Panchateerths"</p> <ul style="list-style-type: none"> Mhow: His Birthplace Nagpur: Where he studied London: Where he resided and studied Delhi: Where he breathed his last Mumbai: Where he was cremated <p>Other sites of relevance</p> <ul style="list-style-type: none"> Raigarh, Maharashtra: Where Dr. Ambedkar led the Mahad Satyagraha, one of the greatest incidents of expression of freedom for Dalits <ul style="list-style-type: none"> On March 20, 1927 To allow untouchables to use water in a public tank in Mahad Pune, Maharashtra: Where he held the first negotiations with Mahatma Gandhi in Yerwada jail <ul style="list-style-type: none"> On a separate electorate for depressed classes in the legislature of British India in 1932. The result was the Poona Pact signed by Dr. Ambedkar on behalf of the depressed classes and by Madan Mohan Malviya on behalf of upper caste Hindus. Kolhapur, Maharashtra: In March 1920, another legendary social reformer, Chatrapati Shahuji Maharaj, declared Dr. Ambedkar as the true leader of the oppressed classes in India. March 2020 marked the centenary year of this event. Sri Lanka: Where he attended a Buddhist conclave that is said to have influenced him to convert to Buddhism. |
| Sittanavasal Jain Heritage Site | <p>In News: With three-fourth of the art in the Sittanavasal rock cave temple in Pudukottai district of Tamil Nadu either damaged or vandalised, Archaeological Survey of India has undertaken conservation measures and also introduced digital checks to track public access.</p> <p>About the caves:</p> <ul style="list-style-type: none"> Sittanavasal Cave (also, Arivar Koil) is a 2nd-century Tamil Śramaṇa complex of caves in Sittanavasal village in Pudukottai district of Tamil Nadu. Sittanavasal is the name used synonymously for the hamlet and the hillock that houses the Arivar Kovil i.e., temple of Arihats – Jains who conquered their senses, 'Ezhadipattam' (a cavern with 17 polished rock beds), megalithic burial sites and the Navachunai tarn (small mountain lake) with a submerged shrine. This is the only place in Tamil Nadu where one can see Pandya paintings. The site and art were first mentioned by local historian S. Radhakrishnan Iyer in his 1916 book General History of Pudukottai State. <p>About the Art work:</p> |

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| | <ul style="list-style-type: none"> The artwork on the ceiling of the sanctum and the ardha mandapam of Arivar Kovil is an early example of post-Ajanta cave paintings of the fourth to sixth centuries, done using the fresco-secco technique (a process that dispenses with preparation of the wall with wet plaster). The ceiling paintings show 'bhavyas' (exalted souls who work to achieve moksha or spiritual liberation) enjoying themselves in a pool, full of blooming lotuses. Faint outlines linger of dancing girls on the 'ardha mandapam' pillars. The pillars of the verandah (added by the Maharaja of Pudukottai at the instance of then Diwan Alexander Tottenham in the 1900s), were brought from Kudumiyamalai. The colours are a mixture of plant dyes and mineral elements such as lime, lamp black, and clay pigments such as ochre for yellow and terre verte for the greyish-green tints. The design elements hint at its possible earlier existence as a Saivite shrine. Inscriptions in Brahmi and 'vattaezhuthu', from the third century AD are present here. Early Tamil inscriptions from the ninth century AD of the Jain monk Ilan-Gautaman, are inside the complex. Of the 20 cave temples in Pudukottai district, 19 belong to Saivite and Vaishnavite streams of Hinduism; Sittanavasal is the only Jain temple with sculptures. |
| Ancient plant Silphion | <p>Context: A Mediterranean medicinal plant considered a cure-all that mysteriously vanished 2,000 years ago may still be around, a recent study claimed.</p> <p>Ancient Usage of Silphion:</p> <ul style="list-style-type: none"> The resin of the Silphion was extensively used as a spice, perfume, aphrodisiac, contraceptive and medicine. It occupied an important place in the export economy of ancient Cyrene, an old Greek and later Roman colony near north-eastern Libya. used to treat various health problems: goitre, sciatica (nerve pain), toothache, intestinal disorders, hormonal disorders, epilepsy, tetanus, polyps (abnormal growth of tissues) and malignant tumours. Its stalks were eaten as a vegetable, while the roots were consumed raw. <p>Environmental conditions:</p> <ul style="list-style-type: none"> These plants may need cold and moist conditions for seed germination. This is because the plants related to Silphion, such as Ferula drudeana and Ferula asafoetida, also need similar environmental conditions for seeds to germinate An increase in temperature might have increased evaporation, leading to unfavourable conditions. |
| Shaheed Bhagat Singh | <p>In News: The Chandigarh International Airport was renamed as Shaheed Bhagat Singh Airport, on the occasion of the freedom fighter's birth anniversary and the controversy between Punjab and Haryana over their claims on the airport has finally ended.</p> <p>About Shaheed Bhagat Singh:</p> <ul style="list-style-type: none"> Bhagat Singh was born on September 27, 1907 in Lyallpur, Western Punjab (now in Pakistan). He was a revolutionary hero of the Indian independence movement. He attended Dayanand Anglo Vedic High School, which was operated by Arya Samaj. He quit education at the age of thirteen and got admitted to the National College in Lahore, where he studied European revolutionary movements. He worked as a writer and editor in Amritsar for Punjabi- and Urdu-language newspapers espousing Marxist theories. The Jallianwala Bagh massacre of 1919 had a tremendous impact on Bhagat Singh who was just 12-years-old, he took the sand soaked with blood of the Indians killed at the garden and kept it with him to remind him of the ruthlessness of the British government. |

| | |
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| | <p>Nationalist activities:</p> <ul style="list-style-type: none"> • He is credited with popularizing the catchphrase “Inquilab zindabad” (“Long live the revolution”) • Hindustan Socialist Republican Association (HSRA) was founded in 1928 by Chandrashekhar Azad, Bhagat Singh and others. • In 1928, Bhagat Singh and Rajguru shot dead a British police officer, John Saunders, in Lahore, mistaking Saunders, for the British senior police superintendent, James Scott. They held Scott responsible for the death of Lala Lajpat Rai in a lathi charge of Simon Commission. • On 8 April, 1929, Bhagat Singh and Batukeshwar Dutt threw bombs at the Central Legislative Assembly at Delhi ‘to make the deaf hear’. • In the Lahore conspiracy case, Bhagat Singh along with, Rajguru and Sukhdev were sentenced to death. Bhagat Singh was in one-year imprisonment. He was in the Lahore jail when he was hanged in March 1931. • Widespread coverage in Indian-owned newspapers about his courage and spirit—turned him into a household name in India and after his execution into a martyr of Indian Freedom Struggle. • Philosophy: He was an avid reader of the teachings of Mikhail Bakunin and also read Karl Marx, Vladimir Lenin and Leon Trotsky. In his last testament, “To Young Political Workers”, he declares his ideal as the “Social reconstruction on new, i.e., Marxist, basis. Singh regarded Kartar Singh Sarabha, the founding-member of the Ghadar Party as his hero. • Books: Why I am an Atheist, Letter to my father, Jail Notebook |
| Buddhist caves and stupas, and Brahmi inscriptions | <p>In news: In the Bandhavgarh Tiger Reserve in Madhya Pradesh, the Archaeological Survey of India (ASI) discovered Buddhist caves and stupas, and Brahmi inscriptions, dating back to the 2nd century, and Hindu temples from the 9th-11th centuries, and possibly the world’s largest Varaha sculpture.</p> <p>About: The Varaha sculpture is among the many monolithic sculptures of the 10 incarnations of Lord Vishnu.</p> <ul style="list-style-type: none"> • Discoveries include: 26 Buddhist caves dating back to the 2nd and 5th centuries. The caves and some of their remains had ‘Chaitya’ (rounded) doors and stone beds typical of Mahayana Buddhism sites. • 24 inscriptions in Brahmi text, all dating back to the 2nd-5th centuries. The inscriptions mention sites such as Mathura and Kaushambi, and Pavata, Vejabharada and Sapatanaairikaa. The kings they mention include Bhimsena, Pothasiri and Bhattadeva. • 26 temples date to the Kalachuri period between 9th-11th centuries. In addition to this, two Saiva mutts have also been documented. The Kalachuri dynasty, which spread over parts of Gujarat, Maharashtra and Madhya Pradesh, is also associated with the earliest Ellora and Elephanta cave monuments. • Some remains of the Gupta period, such as door jambs and carvings in caves, have also been found. |
| Bathukamma festival | <p>In News: Bathukamma festival will be celebrated at the India Gate with the Telugu people living in the nation’s capital under the aegis of the Culture Ministry for the first time.</p> |

**About:**

- Bathukamma is a colourful **floral festival** of **Telangana** and is celebrated by **womenfolk** with exotic flowers of the region.
- It comes during the **latter half of monsoon**, before the onset of winter. It falls two days before Dassera.
- The most abundant of these **flowers** are – ‘**gunuka**’ and ‘**tangedu**’.
- The ‘**shilpakka pandlu**’ (or ‘sitaphalalu’), **custard apples** or ‘**poor man’s apple**’, are great attraction during this season.
- The flowers are carefully arranged row after row in a **brass plate (called ‘taambalam’)** in circular rows and in alternate colours. The womenfolk carry them on their heads and move as a **procession towards a bigger water body** near the village or town. Then, ‘Bathukammalu’ are slowly immersed into the water.
- Then they share the ‘**maleeda**’ (a **dessert** made with sugar or raw sugar and corn bread) sweets.
- Women make ‘**boddemma**’ (a **deity of Gowri ‘mother Durga’** made with earthly mud) along with Bathukamma and immerse it in the pond. This helps reinforce the ponds and helps it retain more water.
- The flowers used in the festival have a great quality of **purifying water** in ponds and tanks and are **environment-friendly**.



GEOGRAPHY



Coffee Board

In News: On the side lines of the annual conference of United Planters Association of Southern India, **The Coffee Board** is coming out with a **sustainability code for Indian coffee**.

About Coffee Board: The Government of India established the 'Coffee Board' through a constitutional act "Coffee Act VII of 1942"

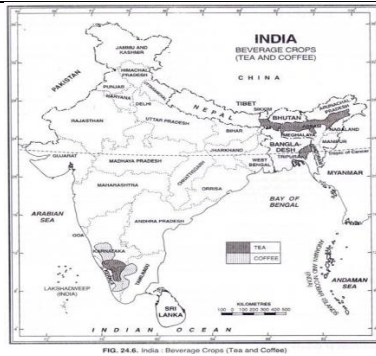
- Until 1995 the Coffee Board marketed the coffee of a pooled supply. Later, coffee marketing became a private-sector activity due to the economic liberalisation in India.
- It is under the administrative control of **Ministry of Commerce and Industry**.
- The Board comprises **33 members** including the Chairman, who is the Chief Executive and appointed by the Government of India.
- **Role of Coffee Board:** Coffee Board serves as the **friend, philosopher and guide to the Coffee sector** covering the entire value chain. The core activities are primarily directed towards **research & development, transfer of technology, enhancement of production, quality improvement, export promotion and supporting development of Domestic market**.
- The head office of the **Coffee Board is situated in Bangalore**.
- International Coffee Day is on **1st October**.

About coffee and its cultivation:

- It is indigenous to **Abyssinia Plateau (Ethiopia)** from where it was taken to Arabia in 11th century. From Arabia, its seeds were brought to India by Baba Badan Giri in the 17th Century and were raised in the **Baba Budan Hills of Karnataka**.
- **Climatic conditions**
- **hot and humid** climate with temperature varying between 15°C and 28 °C
- Heavy rainfall from **150 to 250 cm**.
- It does **not tolerate frost, snowfall, high temperature** above 30°C and strong sun shine and is generally grown under **shady trees**
- **Dry weather** is necessary at the time of **ripening** of the berries
- Stagnant water is harmful
- Grown on **hill slopes** at elevations from 600 to 1,600 metres above sea level
- **Well drained, rich friable loams** containing good deal of **humus and minerals** like iron and calcium are ideal for coffee cultivation
- In India, coffee is traditionally grown in the **Western Ghats spread over Karnataka, Kerala, and Tamil Nadu**. Coffee cultivation is also being expanding rapidly in the non-traditional areas of **Andhra Pradesh and Odisha** as well as in the **North East states**.

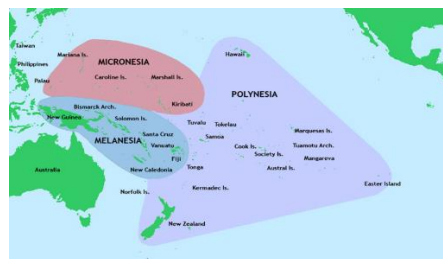
Types of Coffees in India:

- The two main varieties of coffee viz., **Arabica and Robusta** are grown in India. **Arabica is mild coffee**, but the beans being more aromatic, it has higher market value compared to **Robusta beans**. On the other hand, Robusta has more strength and is, therefore, used in making various blends.
- Arabica is grown in higher altitudes than Robusta.
- **Arabica is susceptible to pests & diseases** such as **White Stem Borer, leaf rust**, and requires more shade than Robusta.
- The harvest of **Arabica** takes place between **November to January**, while for **Robusta** it is **December to February**.



Solomon Islands

In news: Recently, the Solomon Islands has temporarily halted all naval visits.



Key details of the Issue:

- The country's move to **refuse access to its ports** is a departure from the **norm** and **raises concerns about China's growing influence in the country and the region** at
- Earlier this year, the **Solomon Islands established a security agreement with China**, saying it needed **China's assistance with its domestic security situation**.
- The announcement had rattled the **US, Australia, and others in the Indo-Pacific region**.
- The concerns were that the **agreement could potentially lead to a Chinese military base on the island nation**, and the **power-projection capabilities the People's Liberation Army (PLA)** would gain

Prague

In News: Over **70,000 citizens of the Czech Republic** gathered at the heart of the **nation's capital Prague** in a protest **against their government's failure to control soaring energy prices**.

Russia-Ukraine war, and why Prague matters

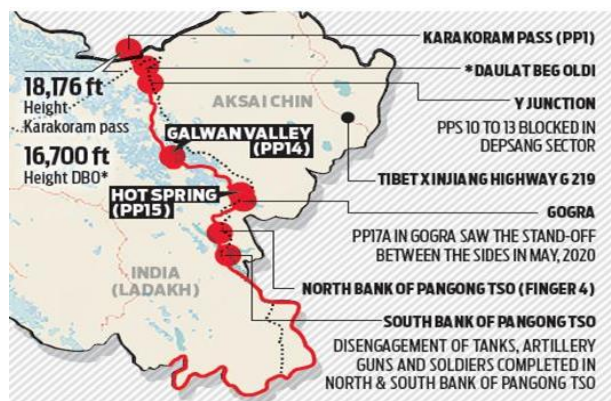
- Czech Republic is a **member of both the European Union and NATO**.
- It has been one of the most strident supporters of Ukraine since the war began.
- It currently holds the **EU's rotating presidency**, and therefore is more diplomatically noticeable in the bloc's efforts to project unity in the time of war.
- Till mid-August, **around 4,13,000 refugees – nearly 4% of the country's population** — had been registered in the Czech Republic.
- The opposition to Russian aggression also comes from the **historical reference point** of the **Prague Spring of 1968** when Soviet tanks rolled into then-Czechoslovakia to crush an uprising demanding a rapid transition to democracy.

Gogra-Hotsprings area

In News: India and China announced that their Armies have begun to disengage from Patrolling Point-15 in the Gogra-Hotsprings area of eastern Ladakh, marking a step forward towards ending the stand-off ongoing since May 2020.

Patrolling Point 15 and 17A:

- Along the Line of Actual Control (LAC) between India and China, Indian Army has been given certain locations that its troops have access to patrol the area under its control.
- These points are known as patrolling points, or PPs.
- Barring certain areas, like Depsang Plains, these patrolling points are on the LAC, and troops access these points to assert their control over the territory.
- It is an important exercise since the boundary between India and China is not yet officially demarcated.
- PP15 and PP17A are two of the 65 patrolling points in Ladakh along the LAC.
- Both these points are in an area where India and China largely agree on the alignment of the LAC.
- PP15 is located in an area known as the Hot Springs, while PP17A is near an area called the Gogra post.



Location of Hot Springs and Gogra Post:

- Hot Springs is just north of the Chang Chenmo River and Gogra Post is east of the point where the river takes a hairpin bend coming southeast from Galwan Valley and turning southwest.
- The area is north of the Karakoram Range of mountains, which lies north of the Pangong Tso lake, and south east of Galwan Valley.

Importance

- The area lies close to Kongka Pass, one of the main passes, which, according to China marks the boundary between India and China.
- India's claim of the international boundary lies significantly east, as it includes the entire Aksai Chin area as well.
- Hot Springs and Gogra Post are close to the boundary between two of the most historically disturbed provinces (Xinjiang and Tibet) of China.

Pangong Tso lake

Galwan Valley

- The valley refers to the land that sits between steep mountains that buffet the Galwan River.
- The river has its source in Aksai Chin, on China's side of the LAC, and it flows from the east to Ladakh, where it meets the Shyok river on India's side of the LAC.
- The valley is strategically located between Ladakh in the west and Aksai Chin in the east, which is currently controlled by China as part of its Xinjiang Uyghur Autonomous Region.

Chang Chenmo River

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| | <ul style="list-style-type: none"> Chang Chenmo River or Changchenmo River is a tributary of the Shyok River, part of the Indus River system. It is at the southern edge of the disputed Aksai Chin region and north of the Pangong Lake basin. The source of Chang Chenmo is near the Lanak Pass. <p>Kongka Pass</p> <ul style="list-style-type: none"> The Kongka Pass or Kongka La is a low mountain pass over a hill that intrudes into the Chang Chenmo Valley. It is in the disputed India-China border area in Ladakh. <p>Karakoram Range</p> <ul style="list-style-type: none"> A mountain range in Kashmir spanning the borders of Pakistan, China, and India, with the northwest extremity of the range extending to Afghanistan and Tajikistan. Most of the Karakoram Mountain range falls under the jurisdiction of Gilgit-Baltistan which is controlled by Pakistan. Highest peak (and world's second highest), K2, is located in Gilgit-Baltistan. Begins in the Wakhan Corridor (Afghanistan) in the west, encompasses the majority of Gilgit-Baltistan, and extends into Ladakh (controlled by India) and Aksai Chin (controlled by China). One of the world's most geologically active areas, at the plate boundary between the Indo-Australian plate and the Eurasian plate. Maximum development of glaciers occurs in the Karakoram range. This range accounts for about 16,000 sq. km or about half of the snow bound area of the Himalayan region. |
| Vembanad lake | <p>In News: Vembanad lake, is shrinking and its unique biodiversity is under threat of ecological decay despite it being declared as a Ramsar site 20 years ago.</p> <p>Features of the Lake:</p> <ul style="list-style-type: none"> This is the largest lake in Kerala and the longest Lake in India. Vembanad Lake is also known as Vembanad Kayal, Vembanad Kol, Punnamada Lake (in Kuttanad) and Kochi Lake (in Kochi). It is bound by Alappuzha, Kottayam and Ernakulam Spanning several districts of Kerala and covering a territory of more than 2033.02 km². The lake has its source in four rivers, Meenachil, Achankovil, Pampa and Manimala. It is separated from the Arabian Sea by a narrow barrier island and is a popular backwater stretch in Kerala. Vallam Kali (i.e., Nehru Trophy Boat Race) is a Snake Boat Race held every year in the month of August in Vembanad Lake. In 2002, it was included in the list of wetlands of international importance, as defined by the Ramsar Convention. It is the second-largest Ramsar site in India only after the Sundarbans in West Bengal. The Government of India has identified the Vembanad wetland under the National Wetlands Conservation Programme. The Kumarakom Bird Sanctuary is located on the east coast of the lake. In 2019, Willingdon Island, a seaport located in the city of Kochi, was carved out of Vembanad Lake. |
| Azerbaijan-Armenian border dispute | <p>In news: Recently, territorial dispute between Armenia and Azerbaijan over the Nagorno-Karabakh region has re-erupted with heavy clashes.</p> <ul style="list-style-type: none"> Armenia and Azerbaijan are part of Transcaucasia or South Caucasia. It is a geographical region in the vicinity of the southern Caucasus Mountains on the border of Eastern Europe and Western Asia consisting of Georgia, Armenia, and Azerbaijan. |

Do you know?

- Nagorno-Karabakh region has 95% of the population as ethnically Armenian and is controlled by them but it is internationally recognised as part of Azerbaijan.



Manasbal Lake

In News: After a gap of 33 years, Manasbal Lake is once again open for training drills after raging militancy forced the Navy to abandon it.

- Recently over 100 National Cadet Corps (NCC) cadets, both from J&K and outside, including female cadets, participated in **exercises like sailing and boat pulling**.

About Manasbal Lake:

- **Location:** Central Kashmir's Safapora area in Ganderbal district.
- **Features:** It's a **freshwater lake** with picturesque hills and pristine waters. The **Mughal Garden, called the Jaroka Bagh, (meaning bay window) built by Nur Jahan overlooks the lake.**
- **Biodiversity:** The lake is a good place for birdwatching.
- **Flora:** macrophytes and phytoplankton
- **Fauna:** zooplankton, benthos and fish
- **History:** Training in the area was suspended during the inception of militancy in the 1989 and thereby abandoned by the Navy. The NCC has been working in J&K since 1965.
- **Issues:** **Eutrophication** (nutrient-induced increase in phytoplankton productivity) and **pollution**
- **Other lakes in Kashmir:** Dal Lake, Wular Lake, Tarsar-Marsar Lakes.

About NCC:

- It is the **youth wing of the Indian Armed Forces** as a Tri-Services Organisation, comprising the Army, the Navy and the Air Force
- Headquarters are in New Delhi, India.
- It is **open to school and college students on voluntary basis,**
- To develop the youth of the country into **disciplined and patriotic citizens.**
- The emblem of the NCC consists of **3 colours; red, dark blue and light blue** representing the Indian Army, Indian Navy and Indian Air Force respectively. The 17 lotuses indicate the 17 directorates of India.

Iron Ore

In News: The Supreme Court **raised the ceiling limit of iron ore mining** for some districts of Karnataka saying **conservation of the ecology and environment must go hand in hand with the spirit of economic development.**

Iron Ore:

- Iron ores are **rocks and minerals from which metallic iron can be extracted.**

- **India has large iron ore reserves.** It occurs in various geological formations but major **economic deposits are found in volcano-sedimentary Banded Iron Formation (BIF) from the Precambrian age.**
- **Magnetite is the finest iron ore** with a **very high content of iron up to 72 percent.**
- It has excellent magnetic qualities, especially valuable in the electrical industry.
- **Hematite ore is the most important industrial iron ore** in terms of the quantity used but has a slightly lower iron content than magnetite.
- The highest producer is the Odisha Jharkhand belt, Durg Bastar Chandrapur belt, Bellary-Chitradurga-Chikmagalur-Tumkur belt, and the Maharashtra Goa belt.

The iron ore is found in following four types:

Magnetite: It is the most important and best kind of iron ore. It contains about **72% metallic iron in it.** It is found in Karnataka, Andhra Pradesh, Rajasthan, Tamil Nadu, Goa and Kerala.

Hematite: It contains about **60-70 percent metallic iron** in it.

- It is **red and brown in colour.**
- It is found in Odisha, Jharkhand, Chhattisgarh and Andhra Pradesh. In the western section, Karnataka, Maharashtra and Goa have this kind of ore.

Limonite: It contains about **30 to 40 percent metallic iron** in it. It is mostly yellow in colour. It is low-grade iron ore.

Siderite: It has more impurities.

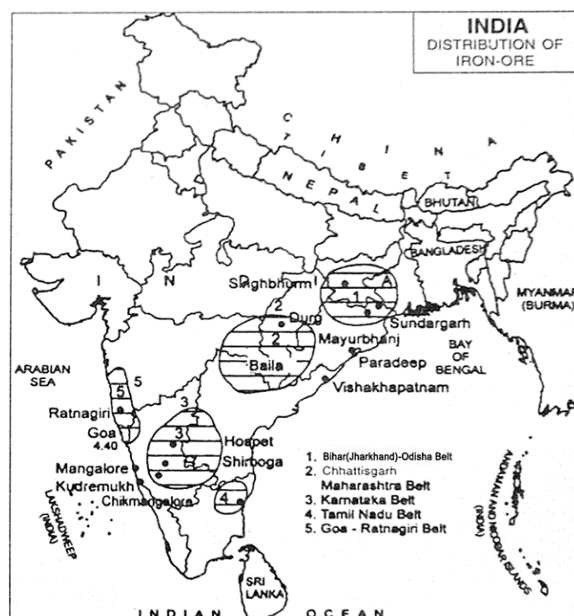
- It contains about **48 percent metallic iron content** in it.
- It is brown in colour.
- It contains a mixture of iron and carbon. It is low-grade iron ore. It is self-fluxing due to the presence of lime.

Reserves and Distribution of iron ore:

- About **95% of total reserves of iron ore are found in the States of Odisha, Jharkhand, Chhattisgarh, Karnataka, Goa, Telangana, Andhra Pradesh, and Tamil Nadu.**
- **India's leading state that produces iron ore is Odisha.** It accounts for more than 55% of the **total production** followed by Chhattisgarh producing almost 17%, this is followed by Karnataka and Jharkhand producing 14% and 11% respectively.

Export of iron ore from India:

- India is the **fifth largest exporter of iron ore in the world.**
- About **50 to 60 percent of our total iron ore production to countries like Japan, Korea, European countries, and lately to Gulf countries.**
- Japan is the biggest buyer of Indian iron ore accounting for about three-fourths of our total exports.
- Major ports handling iron ore export are **Vishakhapatnam, Paradip, Marmagao, and Mangalore.**



Super Typhoon 'Hinnamnor'

In News: The **strongest tropical storm of 2022**, dubbed **Super Typhoon 'Hinnamnor'**, has been barrelling across the **western Pacific Ocean**.

Cyclones:

- Cyclones are a type of **low-pressure environment with rapid inward air circulation**.
- In the **Northern Hemisphere**, air flows **counter clockwise**, while in the **Southern Hemisphere**, it circulates **clockwise**.

Tropical Cyclones:

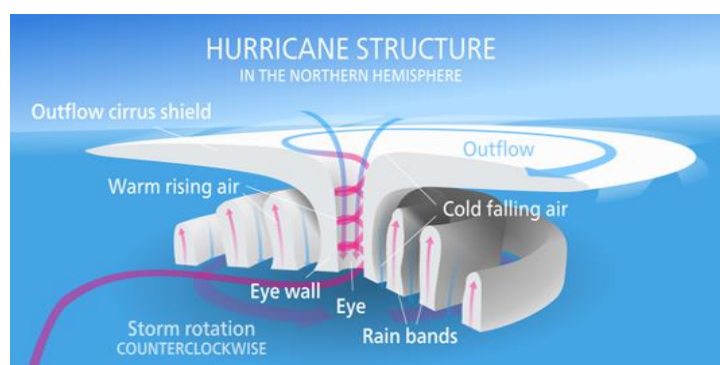
- The term 'Tropical Cyclone' is used by the **World Meteorological Organization** to describe **weather systems with winds greater than 'Gale Force'** (minimum of 63 km per hour).
- Tropical cyclones are formed in the region **between the Tropics of Capricorn and Cancer**.
- They're large-scale weather systems that form over tropical or subtropical oceans and coalesce into surface wind circulation.
- Tropical cyclones are **one of the world's most destructive natural disasters**.

Favourable Conditions for the Formation of Tropical Cyclone:

- A **large area of water surface with a temperature above 27° C**
- The **Coriolis force is strong enough to form a cyclonic vortex**.
- **Variations in the vertical wind speed are minor**.
- A weak low-pressure area or low-level cyclonic circulation already exists.
- Above the sea level system, there should be a **higher divergence**.

Origin of Tropical Cyclones:

- Tropical cyclones arise over **tropical oceans in late summers and have a thermal origin** (August to mid-November).
- Because of the **Coriolis effect**, the **powerful local convectional currents take on a whirling motion at these regions**.
- These cyclones form and move until they reach a weak place in the trade wind belt.



Developmental Stages of Tropical Cyclone

- Tropical cyclones can be classified into **three stages throughout their development**:

Formation and Initial Development Stage

- The **transport of water vapor and heat from the warm ocean to the overlying air**, largely through evaporation from the sea surface, is crucial to the creation and early development of a cyclonic storm.

- Convection with condensation of rising air above the ocean surface stimulates the creation of huge vertical cumulus clouds.

Mature Stage

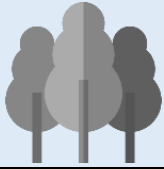
- The **air rises in powerful thunderstorms as a tropical storm intensifies**, and it tends to spread out horizontally at the tropopause level.
- **When air spreads out, a positive pressure is created at high elevations, speeding up the downward migration of air due to convection.**
- When subsidence is induced, the air warms up due to compression, resulting in a warm 'Eye' (low-pressure centre).
- A **mature tropical cyclone** in the Indian Ocean has a concentric pattern of **highly turbulent large cumulus thundercloud bands** as its principal physical feature.

Modification and Decay

- As soon as its **source of warm moist air** begins to **ebb or is abruptly cut off**, a **tropical cyclone begins to weaken in terms of core low pressure, internal warmth, and extremely fast speeds.**
- This occurs after it **reaches land or passes across chilly water.**

Local Names

- North Atlantic (including Caribbean and Gulf of Mexico): **Hurricanes**
- Eastern and Central North Pacific: **Hurricanes**
- Western Northern Pacific: **Typhoons**
- Arabian Sea/Northern Indian Ocean: **Tropical Cyclones**
- South Indian Ocean: Tropical Cyclones/Willy-Willy for southwest Australia
- Coral Sea/South Pacific: **Tropical Cyclone**



ENVIRONMENT



Nyukmadong community Reserve

Context: Residents of Nyukmadong village said **Border Roads Organisation** destroyed more than 80% of the 36 sq. km forest **without consultations or compensation**.

Background: Almost 60 years after becoming collateral damage in one of the fiercest battles between **Indian Army soldiers and Chinese invaders**, a village in Arunachal Pradesh is fighting a war to protect a sacred forest from a project for **preventing a repeat of 1962**.

Violation of Tribal Rights and Loss of Flora and Fauna:

- The place is known for a **Buddhist-style war memorial** on a 1.5-acre plot overlooking the site of a battle on November 18, 1962.
- According to the Kolkata-based **South Asian Forum for Environment**, the road project is an example of **trespassing and ignoring the rights of a local tribal community** to the land and the forest ecosystem they are dependent on.
- The **WWF (World Wide Fund for Nature)** declared the patch as a **community reserve forest because of its rich biodiversity**. The **red-listed Indian red panda** is found in this area.
- Community representatives said the **deforestation (for the road) affected their traditional holy sites, locally called phu**.
- It could be the first test case for the **new Forest Rule 2022 that seeks to rob indigenous people of their right to forest resources**.
- The local stakeholders said much of the damage to the sacred forest cannot be reversed. **“Nothing can compensate for the loss to the biodiversity, but the community as landowners should be paid for re-greening the bald patche.**
- The other impacted areas are Gyandrabrangsa, Halftangmu, Penpeytang, Chendhuphu, Yangphu and Changphunakphu.

Border Roads Organisation (BRO):

- The BRO is a **road construction executive force** in India that provides support to and is now a part of the **Indian Armed Forces**.
- BRO develops and maintains road networks in **India’s border areas and friendly neighboring countries**.
- The BRO consists of **Border Roads Wing under the Ministry of Defense** and the **General Reserve Engineer Force (GREF)**. Officers are selected through the **Indian Engineering Services (IES)** Examination conducted by the **Union Public Service Commission (UPSC)**.

Cheetah Reintroduction

In news: On September 16, a modified passenger B-747 Jumbo Jet will take off from Namibia for Jaipur to transport **eight Namibian wild cheetahs, five females and three males**, the founders of a new population in **Kuno National Park, Madhya Pradesh**.

About Kuno National Park, Madhya Pradesh:

- Established in 1981 as a wildlife sanctuary in the Sheopur and Morena districts.
- In 2018, it was given the status of a national park. It is part of the Khathiar-Gir dry deciduous forests ecoregion.
- Area of 344.686 km²
- Fauna: **Indian leopard, jungle cat**, sloth bear, **dhole**, Indian wolf, golden jackal, striped hyena, and Bengal fox, **chital, Sambar deer, nilgai**, four-horned antelope, chinkara, blackbuck and wild boar

Cheetahs and other big Cats

Context: The cheetah, which is being re-introduced to India from Africa, is not to be confused with the leopard, which too has spots that look somewhat similar. The following are the list of members of the 'cat' genus Panthera, Puma, and Acinonyx.

Tiger (Panthera Tigris)

- Size: 75-300 kg | IUCN Status: Endangered



- It is **national animal of India, Bangladesh, Malaysia, and South Korea.**
- It is primarily a forest animal; they range from the **Siberian taiga to the Sunderban delta.**
- Tiger is the **largest of all wild cats** and also the earliest Panthera member to exist.
- As per the census released in December 2021, the **population of tigers in India is 2,967**, hosting approximately two-thirds of the world's tigers in less than one-fourth of the global range.
- **Madhya Pradesh** has largest population of Tigers (526), followed by **Karnataka** (524) according to latest report by MoEF&CC.

Lion (Panthera Leo)

- Size: 100-250 kg | IUCN Status: **African lion: Vulnerable, Asiatic Lion: Endangered**
- **Native to Africa and Asia**, the lion is the most social cat, and lives in groups called prides.
- They prefer open forests such as **scrubland, and adult males have a prominent mane.**
- There are approximately **600 Asiatic lions left in the Gir Forest of Western India**, their last remaining natural habitat.



- The lion is arguably the most widely recognised animal symbol in human culture be it the **Ashoka pillar in Sarnath, the main entrance to Buckingham Palace, or the 20th Century Fox and MGM logo.**

Jaguar (Panthera Onca)

- Size: 50-110 kg | IUCN Status: **Near Threatened**



- The largest cat in the Americas, the Jaguar has the **strongest bite force of all wild cats**, enabling it to bite directly through the skull of its prey.
- **Melanistic (black) Jaguars** are common and are often called black panthers. Jaguar was a powerful motif in the Mayan and Aztec civilisations.

Leopard (Panthera Pardus)

- Size: 30-90 kg | IUCN Status: **Vulnerable**
- Similar in appearance to the Jaguar with a rosette patterned coat, the leopard was described by Jim Corbett as “**the most beautiful of all animals**” for its “**grace of movement and beauty of colouring**”.



- The most adaptable of all big cats, they occupy diverse habitats at all altitudes across Africa and Asia. Like black jaguars, melanistic leopards are called black panthers.
- In some African cultures, leopards are considered to be better hunters than lions.

Snow leopard (Panthera Uncia)

- Size: 25-55 kg | IUCN Status: **Vulnerable**



- The ghost of the mountains, this **Smokey-grey cat** lives above the snow line in **Central and South Asia**.
- The **most elusive of all big cats**, it cannot roar, and has the longest tail of them all — which comes in handy for balance while hunting along the cliffs, and also gives warmth when wrapped around the body.
- The snow leopard is the state **animal of Ladakh and Himachal Pradesh**.

Puma Closely related to the domestic cat, this genus has only one extant species, the cougar. Cougar (Puma concolor)

- Size: 40-100 kg | IUCN Status: **Least Concern**



- The cougar is the second-largest cat in the Americas. (The Jaguar is the largest.)
- Cougars are also called 'mountain lion' and 'panther' across their range from the **Canadian Yukon to the Southern Andes**. Concolor is Latin for "of uniform colour". The Incas designed the city of Cusco in the shape of a cougar.

Acinonyx : This is a unique genus within the cat family, with only one living member, the cheetah.

Cheetah (*Acinonyx jubatus*)

- Size: 20-70 kg | **IUCN Status: Vulnerable**

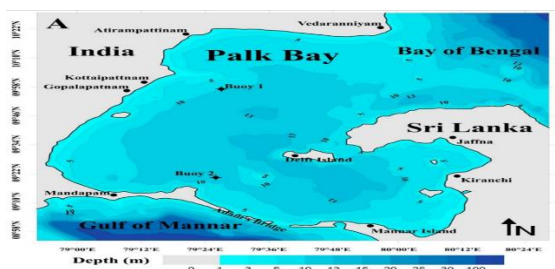


- The fastest land mammal, the cheetah is the only cat without retractable claws — the grip helps it accelerate faster than any sports car (0-100 km/hr in 3 seconds).
- Cheetahs are not aggressive towards humans, and they have been tamed since the Sumerian era. They don't breed well in captivity — picky females play hard to get.

India's first Dugong conservation reserve

In news: Recently, the Tamil Nadu government has decided to go ahead with the establishment of India's first conservation reserve for the **Dugong in Gulf of Manner, Palk Bay**.

- It facilitates India to act as the leading nation in the **South Asia Sub-region with respect to dugong conservation**.



About Dugongs:

- **Dugong** (*Dugong dugon*) also called '**Sea Cow**' is one of the **four surviving species** in the Order Sirenia and it is the only existing species of herbivorous mammal that lives exclusively in the sea including in India.
- Dugongs are an important part of the marine ecosystem and their depletion will have effects all the way up the food chain.
- **Distribution and Habitat:** They are found in over 30 countries and in India are seen in the Gulf of Manner, Gulf of Kutch, Palk Bay, and the Andaman and Nicobar Islands.
- **IUCN Red List status: Vulnerable**
- Wild (Life) Protection Act, 1972: **Schedule I**

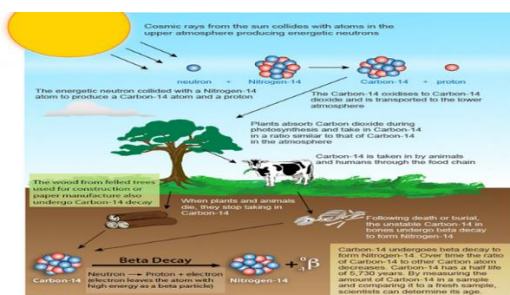
- **CITES: Appendix I**

Steps Taken for Conservation:

- In February 2020, India hosted the **13th Conference of Parties (CoP) of the Convention on the Conservation of Migratory Species of Wild Animals (CMS)**, an environmental treaty under the aegis of the **United Nations Environment Programme (UNEP)**.
- The **Government of India** has been a **signatory to the CMS since 1983**.
- **India** has signed non-legally binding **Memorandums of Understanding (MoU)** with CMS on the **conservation and management of Siberian Cranes (1998), Marine Turtles (2007), Dugongs (2008) and Raptors (2016)**.
- The **Ministry of Environment, Forests and Climate Change** constituted a '**Task Force for Conservation of Dugongs**' to look into issues related to conservation of dugongs and implementation of the '**UNEP/CMS Dugong MoU**' in India.

Carbon Dating

In news: A Varanasi district court has issued notice regarding carbon-dating of the disputed structure known to have been found inside the premises of the Gyanvapi mosque.



What is Carbon Dating?

- Carbon dating, also called **radiocarbon dating** is method of age determination that depends upon the decay to nitrogen of radiocarbon (Carbon-14).
- This method was developed by the **American physicist Willard F. Libby** about 1946.
- Carbon-14 is continually formed in nature by the interaction of neutrons with nitrogen-14 in the Earth's atmosphere.
- The neutrons required for this reaction are produced by cosmic rays interacting with the atmosphere.

How it works?

- Radiocarbon present in molecules of atmospheric carbon dioxide enters the biological carbon cycle: it is absorbed from the air by green plants and then passed on to animals through the food chain.
- Radiocarbon decays slowly in a living organism, and the amount lost is continually replenished as long as the organism takes in air or food.
- Once the organism dies, however, it ceases to absorb carbon-14, so that the amount of the radiocarbon in its tissues steadily decreases.

The half-life concepts:

- Carbon-14 has a half-life of $5,730 \pm 40$ years—i.e., half the amount of the radioisotope present at any given time will undergo spontaneous disintegration during the succeeding 5,730 years.
- Because carbon-14 decays at this constant rate, an estimate of the date at which an organism died can be made by measuring the amount of its residual radiocarbon.

Elephant Conservation

Its uses: It has proved to be a **versatile technique of dating fossils and archaeological specimens from 500 to 50,000 years old**. The method is widely used by geologists, anthropologists, archaeologists, and investigators in related field

Context: Tamil Nadu Forest officials learn the 'language of elephants', thanks to calf rescue missions. Over the last one year, the department has successfully reunited three elephant calves that got separated from their herds in Nilgiris district of Tamil Nadu.



About African Elephants:

- African Savanna (or bush) elephant
 - **IUCN Red List: Endangered**
- African Forest Elephants
 - **IUCN Red List: Critically Endangered**
- Note: Previously, IUCN listed both African elephants as "vulnerable". But now it has opted to list them separately. It is after genetic evidence has proved that both are different species.
- **Habitat:** The distribution of African elephants is throughout the savannas of sub-Saharan Africa and the rainforests of Central and West Africa.
- **African Savanna (or bush) elephant:** They are larger animals that roam the plains of sub-Saharan Africa.
- **African Forest Elephants:** They are smaller animals that live in the forests of Central and West Africa.

Characteristics:

- **African elephants are the largest land animals on Earth.** They are slightly larger than Asian Elephants and can be identified by their larger ears. (Asian elephants have smaller, rounded ears)
- **Elephants are matriarchal.** It means they live in female-led groups. The matriarch is usually the biggest and oldest.
- **Keystone Species:** African elephants are keystone species, i.e., they play a critical role in their ecosystem. They are also known as "ecosystem engineers" as they shape their habitat in many ways.

About Asian Elephants:

The Asian elephant is the largest land mammal on the Asian continent. They inhabit dry to wet forest and grassland habitats in 13 range countries spanning South and Southeast Asia.

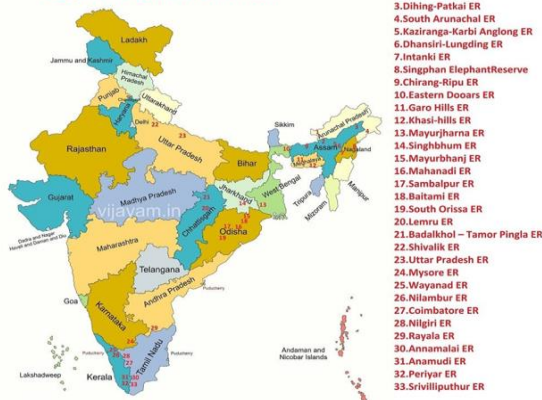
IUCN Red List: Endangered, CITES: Appendix I., Wildlife (Protection) Act, 1972: Schedule I.

Elephant Reserves in India:

- **Karnataka has highest elephant population** followed by **Kerala**, according to recent report of MoEF&CC.

- **PROJECT ELEPHANT** : was launched by the Government of India in the year 1992 as a Centrally Sponsored Scheme.
- **The Ministry of Environment, Forest and Climate Change** provides the financial and technical support to major elephant range states in the country through Project Elephant.

Elephant Reserves in India



Dragonflies

Context: A survey of dragonflies and damselflies at Delhi's biodiversity parks indicates that low rainfall this year may have impacted their life cycles and numbers.

- On August 18 every year, the **World-Wide Fund for Nature (WWF-India)** and the **Bombay Natural History Society (BNHS)** commemorates Dragonfly Day in New Delhi and its surrounding areas.

What are Dragonflies?

- It is an aerial predator insect most commonly found near freshwater habitats throughout most of the world.
- Their distinctive colours make them look beautiful. This makes them valuable subjects for research on insect behavior, both for ecology and art.
- **Habitat:**
 - Most species of dragonflies live in the tropics and particularly in the rainforests.
- **Significance:**
 - Dragonflies are important to their environments **both as predators (particularly of mosquitos) and as prey to birds and fish**. Because these insects require stable oxygen levels and clean water, scientists consider them reliable bioindicators of the health of an ecosystem.
 - Dragonflies are essential bio-indicators of an area's ecological health. Because they eat mosquitoes and other insects that transmit life-threatening diseases like Malaria and Dengue Fever.
- **Threats:**
 - The rapid destruction of their habitat poses a direct threat to their survival making their conservation urgent.

Key Findings of the survey:

- The **Kamla Nehru Ridge** recorded the maximum number of species – 25.
- The **Yamuna Biodiversity Park** recorded 23 species, a little less than the 25 species recorded in 2018.
- In terms of the number of individuals recorded, the **Kalindi Biodiversity Park** recorded the highest number at 3,348, followed by the **Aravalli Biodiversity Park** where 555 individuals were counted.
- The **Neela Hauz biodiversity park** also recorded a fewer number of species this year – just six – as compared to 2018, when nine species were counted.

- Species that were recorded include the **Scarlet Skimmer**, **Picture Wing dragonfly** and the **Granite Ghost** along with dragons mentioned below.(in pictures)

Recent other discoveries of Dragonflies:

- Recently, Dragonfly enthusiasts have recorded the presence of a rare dragonfly species named "**Spiny Horntail**" that was not seen in Kerala until now.
 - The Western Ghats are home to this species, which was discovered in Maharashtra earlier this year.



Golden dartlet

Ditch jewel



Pied paddy skimmer

Spiny horntail

**Breakthrough
Agenda Report
2022**

In News: The **first** annual Breakthrough Agenda Report, delivers a progress report on the **actions needed** to deliver on the historic **clean technology commitment** by governments.

- The report puts forward 25 **recommendations** for leaders to discuss at the **Global Clean Energy Action Forum** and the **13th Clean Energy Ministerial** to be held in Pittsburgh, the US.

About the report:

- The Breakthrough Agenda Report 2022 is a **new report** by the International Energy Agency (IEA), the International Renewable Energy Agency (IRENA) and the **UN Climate Change High-Level Champions**.
- Objective:** It aims at supporting stronger **international collaboration** to amplify ambition, accelerate progress and drive **faster reductions** in global greenhouse gas (GHG) emissions. To align countries' actions and **coordinate** investment to scale up deployment and drive do down costs across **five key sectors — power, road transport, steel, hydrogen and agriculture**
- Together, these sectors account for nearly **60% of global greenhouse gas (GHG) emissions** and could deliver the bulk of emissions reductions needed by 2030 in a pathway that would make a significant contribution to **limiting global warming to a maximum of 1.5 degrees Celsius**, in line with the **Paris Agreement goals**.

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| | <ul style="list-style-type: none"> The report notes an increase in practical international cooperation in recent years such as doubling of EV sales, increase in global renewable capacity of eight per cent in 2022 — pushing through the 300GW mark for the first time. <p>About IEA:</p> <ul style="list-style-type: none"> It was established in the framework of the Organisation for Economic Co-operation and Development (OECD) in 1974 in the wake of the 1973 oil crisis. IEA is an autonomous intergovernmental organisation. Its mission is guided by four main areas of focus: energy security, economic development, environmental awareness, and engagement worldwide. Headquarters: Paris, France. Composition: It has 30 members at present. IEA family also includes eight association countries. A candidate country must be a member country of the OECD. But all OECD members are not IEA members. Three countries are seeking accession to full membership: Chile, Israel, and Lithuania. <p>Reports by IEA:</p> <ul style="list-style-type: none"> Global Energy & CO2 Status Report. World Energy Outlook. World Energy Statistics. World Energy Balances. Energy Technology Perspectives. |
| Wildlife Conservation in Arunachal Pradesh | <p>Context: Recently the National Green Tribunal (NGT) has dismissed the case it took up suo motu on the grant of forest clearance for the 3000-MW Dibang hydel project without meeting the precondition of declaring a national park.</p> <p>Wildlife Conservation in the State:</p> <p>Pakke Tiger Reserve</p> <ul style="list-style-type: none"> PTR lies in the foothills of the eastern Himalaya in the East Kameng district of Arunachal Pradesh and is also known as Pakhui Tiger Reserve. It falls within the Eastern Himalaya Biodiversity Hotspot. It is known for its amazing sightings of four resident hornbill species. The great hornbill is the state bird of Arunachal Pradesh and it is 'vulnerable' under the IUCN Red List. <p>Namdapha National Park and Tiger Reserve:</p> <ul style="list-style-type: none"> Namdapha National Park is nestled between the Patkai and Dapha bum ranges of Mishmi Hills in the Eastern Himalayan Sub-region. Namdapha is located on the international border between India and Myanmar, along the raging Noa-Dihing River. It is the world's only park with the four feline species of big cats, the Tiger (<i>Panthera Tigris</i>), Leopard (<i>Panthera Pardus</i>), Snow Leopard (<i>Panthera Uncia</i>), and Clouded Leopard (<i>Neofelis Nebulosa</i>), as well as a large number of Lesser cats. <p>Mouling National Park:</p> <ul style="list-style-type: none"> Mouling National Park is a beautiful place, located in the Upper Siang district (some parts of the West Siang and East Siang districts) of the state of Arunachal Pradesh. The name Mouling has been derived from highest peak named Mouling as per local faith and belief. |

- There is the **river Siyom** flowing along the western borders of the park, while a number of smaller rivers are also passing through the park namely the Semong, Krobong, Subong and Siring, all of which flow into the Siang River, which is at the eastern boundary.

Eaglenest Wildlife Sanctuary:

- Eaglenest or Eagle's Nest Wildlife Sanctuary is a protected area of India in the **Himalayan foothills of West Kameng District**, Arunachal Pradesh.
- It **conjoins Sessa Orchid Sanctuary** to the northeast and **Pakhui Tiger Reserve** across the Kameng river to the east. It is also a part of **the Kameng Elephant Reserve**.
- The sanctuary derives its name from **the Red Eagle Division of the Indian army** which was posted in the area in the 1950s.
- Eaglenest is the site where **Bugun liocichla** (a passerine bird species) was first discovered in 1995 and again observed and described in 2006.

Sessa Orchid Sanctuary:

- The Sessa Orchid Sanctuary is located in the **Himalayan foothills in Bhalukpong Forest Division of West Kameng District**, Arunachal Pradesh.
- It **conjoins Eaglenest Wildlife Sanctuary** to the southwest.
- It is a part of the **Kameng Protected Area Complex (KPAC)**, which is an **Elephant Reserve**. Sessa is noted for the occurrence of more than 200 orchid species with 5 new and endemic species.
- The sanctuary is unique in having **7 endemic species of saprotrophic orchids**.

About National Green Tribunal:

- The National Green Tribunal has been established in 2010 under the **National Green Tribunal Act 2010** for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources.
- It is a specialized body equipped with the necessary expertise to handle environmental disputes involving multi-disciplinary issues.
- The Tribunal **shall not be bound by the procedure** laid down under the **Code of Civil Procedure, 1908**, but shall be **guided by principles of natural justice**.
- The Tribunal's dedicated jurisdiction in environmental matters shall provide speedy environmental justice and help **reduce the burden of litigation in the higher courts**.
- The Tribunal is mandated to make and endeavour for **disposal of applications or appeals finally within 6 months** of filing of the same.
- **New Delhi is the Principal Place of Sitting of the Tribunal** and Bhopal, Pune, Kolkata, and Chennai shall be the other four place of sitting of the Tribunal.



SOCIETY & SOCIAL ISSUES

**Operation “Megh Chakra”**

Context: The Central Bureau of Investigation (CBI) conducted searches as part of a pan-India drive against the **circulation and sharing of child sexual abuse material**. The operation was code-named “Megh Chakra”.

About Operation Megh Chakra:

- **Operation Megh Chakra** is one of the **CBI-led global operations** in recent times for rapid response to **online child sexual exploitation cases** with international linkages and organized cyber enabled financial crimes.
- It is aimed at identifying and acting against the individuals and gangs involved in circulating child sexual abuse material and blackmailing minors.
- The operation is targeted at **cloud storage** — **therefore the codename ‘Megha Chakra’ — used by peddlers to circulate audio-visual material on illicit sexual activities with minors.**
- It sought to collate information from various law enforcement agencies within India, engage with relevant law enforcement agencies globally and coordinate closely through **INTERPOL (International Criminal Police Organization) channels** to combat online child sexual exploitation and such organized cyber-criminal activities.

India Hypertension Control Initiative (IHCI)

Context: Recently India won a United Nations (UN) award for its **‘India Hypertension Control Initiative (IHCI)’**, a large-scale hypertension intervention under the National Health Mission that saw 3.4 million hypertensive people identified and put on treatment at various government health facilities.

About IHCI:

- India Hypertension Control Initiative (IHCI) is a multi-partner initiative involving the **Indian Council of Medical Research, WHO-India, Ministry of Health and Family Welfare, and State governments** to improve blood pressure control for people with hypertension.
- The project initiated in 26 districts in 2018 has expanded to more than 100 districts by 2022.
- More than **two million patients** were started on treatment and tracked to see whether they **achieved BP control**.

About 2022 United Nations Inter-Agency Taskforce and the WHO Special Programme on Primary Health Care Awards:

- Awards were made in three categories: **(i) ministries of health (or government agency under a ministry of health); (ii) ministries (or government agencies) beyond health; and (iii) non-state actors (non-governmental organization, academic institutions, and philanthropy).**
- Winners were selected on the basis of demonstrative commitment to multisectoral action in the prevention and control of NCDs, mental health or other NCD-related SDGs.
- Nominations were specifically encouraged for organizations working with children and youth groups as well as those working with minority communities.
- **2022 is the 1st year the awards** were run in partnership with PHC however, the **5th year that the Task Force have ran awards. Self-nominations are not allowed.**

Scheduled Tribes

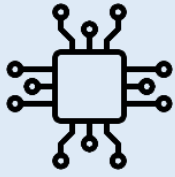
Context: Cabinet approves addition of four tribes in Himachal, Tamil Nadu, Chhattisgarh to ST list.

What are the tribes added to the Scheduled Tribes list?

- The **Hatti tribe** in the Trans-Giri area of Sirmour district in **Himachal Pradesh**.
- The **Narikoravan and Kurivikkaran** hill tribes of **Tamil Nadu**.

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| | <ul style="list-style-type: none"> The Binjhia in Chhattisgarh, who were listed as ST in Jharkhand and Odisha but not in Chhattisgarh, were the communities newly added to the list. 'Betta-Kuruba' as a synonym for the Kadu Kuruba tribe In Karnataka. In Chhattisgarh, the Cabinet approved synonyms for tribes like the Bharia (variations added include Bhumia and Bhuyian), Gadhwā (Gadwa), Dhanwar (Dhanawar, Dhanuwar), Nagesia (Nagasia, Kisan), and Pondh (Pond), among others. <p>Process to include tribes in the ST list:</p> <ul style="list-style-type: none"> It will start with the recommendation from the respective State governments, which are then sent to the Tribal Affairs Ministry, which reviews and sends them to the Registrar General of India for approval. <ul style="list-style-type: none"> This is followed by the National Commission for Scheduled Tribes' approval before the list is sent to the Cabinet for a final decision. <p>Note: The Cabinet approved a proposal to bring the Gond community residing in 13 districts of Uttar Pradesh, under the ST list from the Scheduled Caste list. This includes the five subcategories of the Gond community (Dhuria, Nayak, Ojha, Pathari, and Rajgond).</p> |
| Economically Weaker Section (EWS) Quota | <p>Context: Recently, the Attorney-General of India articulated that the 10% quota for Economically Weaker Sections (EWS) of society does not erode the rights of the Scheduled Castes, the Scheduled Tribes, or the Other Backward Classes.</p> <p>What is Economically Weaker Section (EWS) Quota?</p> <ul style="list-style-type: none"> The 10% EWS quota was introduced under the 103rd Constitution (Amendment) Act, 2019 by amending Articles 15 and 16. It inserted Article 15 (6) and Article 16 (6). It is for economic reservation in jobs and admissions in educational institutes for Economically Weaker Sections (EWS). It was enacted to promote the welfare of the poor not covered by the 50% reservation policy for Scheduled Castes (SCs), Scheduled Tribes (STs) and Socially and Educationally Backward Classes (SEBC). It enables both the Centre and the States to provide reservations to the EWS of society. <p>Additional Information: Judicial Scrutiny of Reservation:</p> <ul style="list-style-type: none"> The State of Madras v. Smt. Champakam Dorairajan (1951) case was the first major verdict of the Supreme Court on the issue of Reservation. The case led to the First amendment in the constitution. <ul style="list-style-type: none"> The Supreme Court in the case pointed out that while in the case of employment under the State, Article 16(4) provides for reservations in favour of backward class of citizens, no such provision was made in Article 15. Pursuant to the Supreme Court's order in the case the Parliament amended Article 15 by inserting Clause (4). In Indra Sawhney v. Union of India (1992) case the court examined the scope and extent of Article 16(4). <ul style="list-style-type: none"> The Court has said that the creamy layer of OBCs should be excluded from the list of beneficiaries of reservation, there should not be reservation in promotions; and total reserved quota should not exceed 50%. The Parliament responded by enacting 77th Constitutional Amendment Act which introduced Article 16(4A). The Supreme Court in M. Nagaraj v. Union of India 2006 case while upholding the constitutional validity of Art 16(4A) held that any such reservation policy in order to be constitutionally valid shall satisfy the following three constitutional requirements: In Jarnail Singh vs Lachhmi Narain Gupta case of 2018, Supreme Court holds that reservation in promotions does not require the state to collect quantifiable data on the backwardness of the Scheduled Castes and the Scheduled Tribes. |

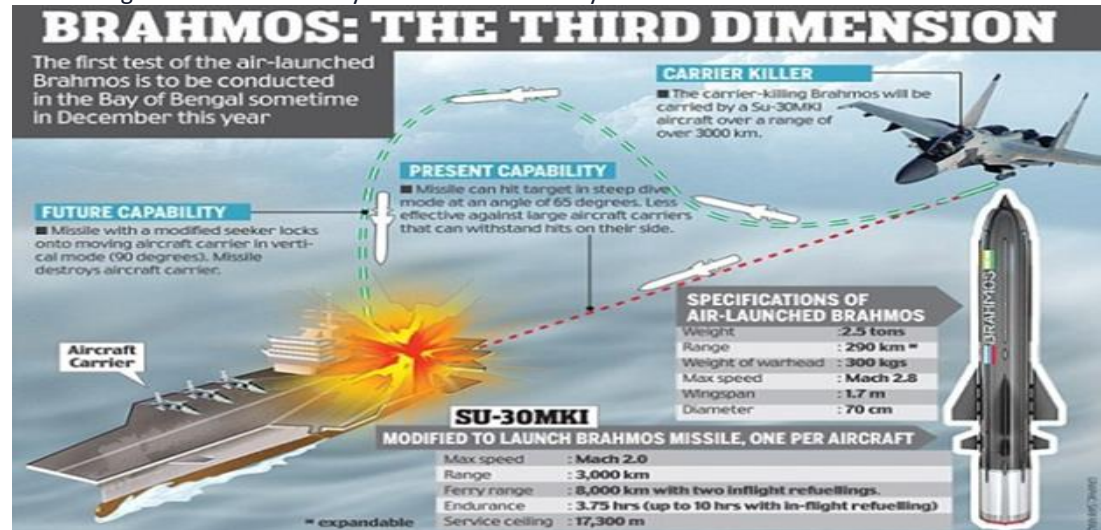
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| | <ul style="list-style-type: none"> In May 2019 the Supreme Court upheld the Karnataka law that allows reservations in promotions for SCs and STs with consequential seniority. |
| T Madhav Rao | <p>About T Madhav Rao:</p> <ul style="list-style-type: none"> Raja Sir Tanjore Madhava Rao was an Indian statesman, civil servant, administrator, and politician who served as the Diwan of Travancore from 1857 to 1872, Indore from 1873 to 1875 and Baroda from 1875 to 1882. Madhava Rao was born on 20 November 1828 in a prominent Thanjavur, Tamil Nadu. He was the nephew of the former Diwan of Travancore T. Venkata Rao and the son of another Ranga Rao. British Liberal statesman Henry Fawcett called him “the Turgot of India”. In 1866, he was made a Knight Commander of the Order of the Star of India. He brought a steam engine to the city and drove a vehicle with it, made telescopes with bamboo pipe and found value in the use of early projectors (magic lanterns) in educating children. He triggered girl’s education in the city by sending his own daughter to the newly started Zenana Mission school. He was senate member of Madras and Bombay Universities, was one of the early members of Indian National Congress. He was a great follower of sociologist and political theorist Herbert Spencer. Minor Hints and Hints on the Training of Native Children authored by Dewan Madhava Rao and biographies on him by Sakha Rama Rayar Lakshmana Rayar and Kulathu Iyer bring to light some of the rare facets of his personality. <p>Administrative Reforms:</p> <ul style="list-style-type: none"> His administrative reforms include strengthening the Public Works department by appointing Mr. Greenway as Civil Engineer in 1860. The telegraph office was started and the anchal (postal) department, which was so far carrying only official letters, was opened to the general public. The Education Department was formalised with the appointment of Sanakra Subba Ayyar as Director. In his final administration report, he demonstrated his vision of development as “to provide every subject within a couple of hours of journey, the advantages of a Doctor, a School Master, a Judge, a Magistrate, a Registering Officer and a Postmaster”. <p>Titles and awards: Fellow of the Madras University- 1862</p> <ul style="list-style-type: none"> Knight Commander of the Star of India- 1866 Title of Rajah- 1868 |



SCIENCE & TECHNOLOGY

**BrahMos
supersonic missile**

Context: The Defence Ministry signed a ₹1,700-crore contract with BrahMos Aerospace Pvt Ltd for 35 combat and three practice BrahMos supersonic surface-to-surface cruise missiles for two P-15B class of stealth guided missile destroyers of the Indian Navy.

**About BrahMos:**

- BrahMos is a joint venture between the DRDO and Russia's NPO Mashinostroyeniya and the missile derives its name from Brahmaputra and Moskva rivers.

Background and development:

- Since the early 1980s, the Integrated Guided Missile Development Programme, conceived and led by Dr A P J Abdul Kalam, started developing a range of missiles including Prithvi, Agni, Trishul, Akash and Nag.
- An Inter-Governmental Agreement was signed with Russia in Moscow in 1998. This led to the formation of BrahMos Aerospace, a joint venture between DRDO and NPO Mashinostroyeniya (NPOM), the Indian side holding 50.5% and the Russians 49.5%.

Strategic significance:

- BrahMos is a two-stage missile with a **solid propellant booster engine**.
- Its first stage brings the missile to supersonic speed and then gets separated.
- The **'fire and forget'** type missile can achieve a cruising altitude of 15 km and a terminal altitude as low as 10 m to hit the target.
- Cruise missiles such as BrahMos, called **"standoff range weapons"**, are fired from a range far enough to allow the attacker to evade defensive counter-fire.
- The BrahMos has three times the speed, 2.5 times flight range and higher range compared to subsonic cruise missiles.

Versions deployed in all three-Armed forces are still being tested regularly:

LAND-BASED:

- The land-based BrahMos complex has four to six mobile autonomous launchers, each with three missiles on board that can be fired almost simultaneously.

- The upgraded land attack version, with capability of cruising at 2.8 Mach, can hit targets at a range up to 400 km with precision.

SHIP-BASED:

- The Navy began inducting BrahMos on its frontline warships from 2005.
- These have the capability to hit sea-based targets beyond the radar horizon.
- The Naval version has been successful in sea-to-sea and sea-to-land modes.
- The BrahMos can be launched as a single unit or in a salvo of up to eight missiles, separated by 2.5-second intervals.

AIR-LAUNCHED:

- On November 22, 2017, BrahMos was successfully flight-tested for the first time from a Sukhoi-30MKI against a sea-based target in the Bay of Bengal.
- BrahMos-equipped Sukhoi-30s, which have a range of 1,500 km at a stretch without mid-air refuelling, are considered key strategic deterrence for adversaries both along land borders and in the strategically important Indian Ocean Region.

SUBMARINE-LAUNCHED:

- This version can be launched from around 50 m below the water surface.
- The canister-stored missile is launched vertically from the pressure hull of the submarine, and uses different settings for underwater and out-of-the-water flights.
- This version was successfully tested first in March 2013 from a submerged platform off the coast of Visakhapatnam.

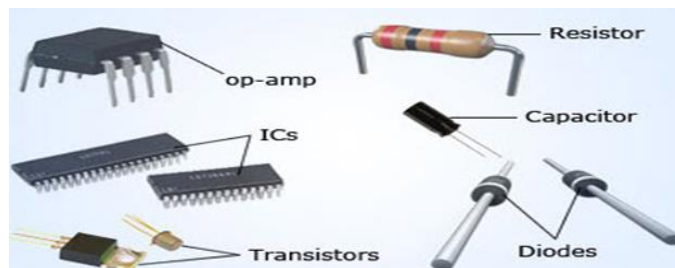
Semiconductor

Context: Emphasising on the need for India to build semiconductor manufacturing capacity to cater to its organic demand, the country could face competition from regions such as the US and Europe as they deleverage dependence on Taiwan — the world's largest semiconductor country.

In this context let's discuss semiconductors in detail:

What is Semiconductor?

- It is a material product **usually composed of silicon**, which conducts **electricity more than an insulator, such as glass**, but **less than a pure conductor**, such as copper or aluminium.
- Semiconductors are **critical technological components for emerging technologies** viz. artificial intelligence (AI) and internet of things applications, 5G communications, cloud computing, automation, electric vehicles, with a wide coverage of applications from basic consumable electronic gadgets and automobiles to areas of strategic operations.



Opportunities for India:

- India's consumption of semiconductors is expected to **cross \$80 billion by 2026** and is expected to reach **\$110 billion by 2030**.

- India has exceptional **semiconductor design talent pool**, accounting for up to **20% of the world's semiconductor** design engineers.
- The **current decade** presents a unique opportunity to India. Companies are looking to diversify their supply chain and for alternatives to their bases in China.
- The establishment of the **value chain for semiconductors** would ensure a multiplier effect on the entire economy.
- The **semiconductor manufacturing** and testing bases are **heavily concentrated in East Asia**, the **Act East policy** provides an opportunity to connect and strengthen ties with key players in the region.

Challenges before semiconductor industry:

- **Huge requirement of Investment**
 - Multi billions of dollars are needed to set up a fab manufacturing unit.
 - The conversion of raw water to water of ultrahigh purity is thus a significant and costly activity for all semiconductor fabs.
- **Water and Electrical supply**
 - Semiconductor manufacturing consumes large quantities of water for a variety of purposes ranging from equipment cooling to wafer surface cleaning.
- **Technological competitiveness**
 - The making of a semiconductor chip involves some technological skill .
- **Inadequate logistics and absence of proper waste**
 - Inadequate logistics and absence of proper waste disposal have further exacerbated the poor state of its production.
- Uninterrupted quality electricity supplies.
- **Covid-19**
 - The Covid-19 pandemic and the subsequent lockdowns across the world that forced shut crucial chip-making facilities in countries including Japan, South Korea, China, and the US.
 - The chip shortages due to Covid-19 have hit automakers with a revenue loss of \$110 bn in 2021.
- **Russia-Ukraine conflict**
 - The Russia-Ukraine conflict and its implications for raw material supplies for the semiconductor value chain has also poised chipmakers to invest in strengthening the semiconductor supply chain.

Initiatives taken by India:

- **Semicon India programme**
 - It provides \$10 bn fiscal support and other non-fiscal measures
 - The Semicon India Program aims to provide attractive incentive support to companies / consortia that are engaged in Silicon Semiconductor Fabs, Display Fabs, Compound Semiconductors / Silicon Photonics / Sensors (including MEMS) Fabs, Semiconductor Packaging (ATMP / OSAT) and Semiconductor Design.
- **India Semiconductor Mission:**
 - It has been set up as an **Independent Business Division within Digital India Corporation** having **administrative and financial autonomy** to formulate and drive India's long-term strategies for developing semiconductors and display manufacturing facilities and semiconductor design ecosystem.
- **Production Linked Incentive scheme**
 - The government also recently announced the **PLI and DLI schemes** as major steps towards building a semiconductor ecosystem in the country.
- The recent Cabinet approval with an outlay of Rs.76,000 crore spread over a **period of six years for the development of semiconductors** and display manufacturing ecosystem is expected to be a shot in the arm.
 - This will claim to attract Rs. 1.7 lakh crore private investment in India.

Anti-radiation tablets

In News: With fears of a nuclear disaster at Ukraine's Zaporizhzhia power plant growing, the European Union has decided to pre-emptively supply 5.5 million anti-radiation pills to be distributed among residents in the vicinity.

What is a radiation emergency?

- These are **unplanned or accidental events that create radio-nuclear hazard** to humans and the environment.
- Such situations involve **radiation exposure** from a radioactive source and require prompt intervention to mitigate the threat.
- Dealing with such an emergency also **involves the use of anti-radiation tablets**.

What are anti-radiation pills?

- **Potassium iodide (KI) tablets**, or anti-radiation pills, are known to **provide some protection in cases of radiation exposure**.
- They contain **non-radioactive iodine** and can help **block absorption**, and subsequent **concentration**, of radioactive iodine in the thyroid gland.

How do these pills work?

- After a **radiation leak**, **radioactive iodine floats through the air and then contaminates food, water and soil**.
- While radioactive iodine deposited during external exposure can be removed using warm water and soap, according to the World Health Organisation, the **bigger risk is inhaling it**.
- **Internal exposure, or irradiation, occurs when radioactive iodine enters the body and accumulates in the thyroid gland**.
- The **thyroid gland, which uses iodine to produce hormones to regulate the body's metabolism, has no way of telling radioactive from non-radioactive iodine**.
- **Potassium iodide (KI) tablets rely on this to achieve 'thyroid blocking'**.
- KI pills taken a few hours before or soon after radiation exposure **ensure that non-radioactive iodine in the medicine is absorbed quickly to make the thyroid "full"**.
- Because KI contains so much non-radioactive iodine, the **thyroid becomes full and cannot absorb any more iodine** – either stable or radioactive – for the next 24 hours.
- But KI pills are **preventive only** and cannot reverse any damage done by radiation to the thyroid gland.
- **Once thyroid gland absorbs radioactive iodine, those exposed are at a high risk of developing thyroid cancer**.

Is the method fool-proof?

- Anti-radiation **pills do not provide 100% protection**.
- The effectiveness of KI also depends on how much radioactive iodine gets into the body and how quickly it is absorbed in the body
- Also, the pills are not meant for everybody. They are recommended for people under 40 years of age.
- While it can protect the thyroid against radioactive iodine, it cannot protect other organs against radiation contamination.

Cervavac

Context: Cervavac, India's first indigenously developed quadrivalent human papillomavirus (qHPV) vaccine for the prevention of cervical cancer has been developed.

About the new vaccine

- **Cervavac was developed by the Pune-based Serum Institute of India in coordination with the Government of India's Department of Biotechnology (DBT).**

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| | <ul style="list-style-type: none"> • HPV vaccines are given in two doses and the antibodies that develop after both are administered can last up to six or seven years. • Unlike Covid vaccines, booster shots may not be required for the cervical cancer vaccine. • Until now, the HPV vaccines available in India were produced by foreign manufacturers at an approximate cost of Rs 2,000 to Rs 3,500 per dose. • Cervavac is likely to be significantly cheaper, slated to cost approximately Rs. 200 to 400. • It has also demonstrated a robust antibody response that is nearly 1,000 times higher than the baseline against all targeted HPV types and in all dose and age groups. <p>How common is cervical cancer in India?</p> <ul style="list-style-type: none"> • Despite being largely preventable, cervical cancer is the fourth most common cancer among women globally, according to the WHO. • Current estimates indicate that every year approximately 25 lakhs women are diagnosed with cervical cancer, and over 75 thousand dies from the disease in India, and 83 % of invasive cervical cancers are attributed to HPVs 16 or 18 in India, and 70% of cases worldwide. • India accounts for about a fifth of the global burden of cervical cancer, with 1.23 lakh cases and around 67,000 deaths per year. • Almost all cervical cancer cases are linked to certain strains of human papillomavirus (HPV), a common virus that is transmitted through sexual contact. • While the body's immune system usually gets rid of the HPV infection naturally within two years, in a small percentage of people the virus can linger over time and turn some normal cells into abnormal cells and then cancer. |
| INS Vikrant | <p>In News: The nation's first Indigenous Aircraft Carrier (IAC-1) was commissioned recently to Indian Navy.</p> <ul style="list-style-type: none"> • The INS Vikrant – the 44,000-tonne indigenous aircraft carrier (IAC) – is the first to be designed and constructed in India. • It is built by Cochin Shipyard Ltd. <p>Features: The Vikrant stretches 262 metres in length, exceeding that of two football fields and is 62 metre wide. Around 20 aircraft can be parked in the hangar.</p> <ul style="list-style-type: none"> • It has a top speed of around 28 knots (more than 50 kmph) and a cruising speed of 18 knots with an endurance of about 7,500 nautical miles. • Over 76 per cent of the material and equipment on board the carrier is indigenous, including 21,500 tonnes of special grade steel developed indigenously and used in Indian naval ships for the first time. • The Made-in-India warship is a feather in the country's cap, as only five or six nations have the capacity of building an aircraft carrier. <p>It will be carrying:</p> <ul style="list-style-type: none"> • the Russian-made MiG-29K fighter jet, • Kamov-31 early warning helicopters, • the indigenously manufactured Advanced Light Helicopters and • the MH-60R multirole helicopter made by the American defence major Lockheed Martin. |
| Inflatable Aerodynamic Decelerator (IAD) | <p>In News: The Indian Space Research Organisation (ISRO) just declared that it has successfully demonstrated the new technology with Inflatable Aerodynamic Decelerator (IAD).</p> <p>What is IAD?</p> <ul style="list-style-type: none"> • IAD is a technique used for an atmospheric entry payload. |

- **An inflatable envelope and an inflatant** (anything that inflates the envelope, like air or helium) **make up the inflatable aerodynamic decelerator.**
- While entering the atmosphere, it inflates like a balloon and decelerates the lander.
- The **inflatant is designed to fill the inflatable envelope** to a condition such that it surrounds the **payload meant to enter the atmosphere of a planet or satellite and causes aerodynamic forces to slow it down.**
- In simpler words, IAD is **designed to increase drag upon entering the atmosphere of any planetary body, like Earth, Mars, or even Moon.**
- Its shape is maintained by a closed, gas-pressured body and the inflatant gas is also generated internally. Some versions also use ram air or both.
- Some space agencies, **including NASA, have already successfully tested advanced versions of the technology,** including the supersonic and hypersonic variants.
- However, for near future missions of ISRO, the current version that it tested is perfect.



Where does ISRO intend to use it?

- The IAD will help ISRO in performing many space tasks effectively including **recovery of spent stages of rockets, for landing payloads on missions to other planetary bodies.**

INCOVACC

In News: The **national drug regulator, DGCI,** has given the **green signal** to the country's **first intra-nasal Covid vaccine** for emergency use in adults – iNCOVACC.

- Manufactured by **Bharat Biotech,** the company behind Covaxin, in partnership with Washington University-St Louis, and partly funded by the Department of Biotechnology's Covid Suraksha programme
- The new vaccine has been approved for **primary immunisation — it can be administered only to the unimmunised.**
- Those who have already received the first and second doses of other vaccines will not be eligible to get iNCOVACC as the "precaution" third dose.
- It will be delivered through the **nasal route.**
- This would potentially **trigger an immune response** in the mucosal membrane.
- It has been designed to not only **protect against infection but also reduce transmission of the virus.**
- May produce **local antibodies** in the **upper respiratory tract,** which may provide the **potential to reduce infection and transmission.**
- The vaccine uses a **modified chimpanzee adenovirus, which cannot replicate in the body, to carry the Covid spike protein to induce immunity.**

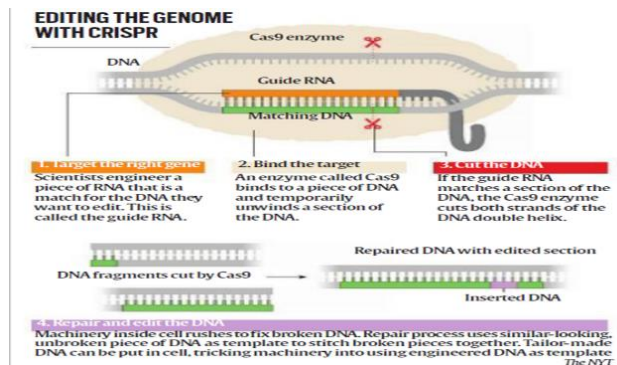
Benefits of intranasal vaccine:

- Promises to be more effective, since it is expected to generate **immune responses at the site of infection (respiratory mucosa)**
- Non-invasive, Needle-free.

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| | <ul style="list-style-type: none"> • Ease of administration – does not require trained health care workers. • Elimination of needle-associated risks (injuries and infections). • High compliance (Ideally suits for children's and adults). • Scalable manufacturing – able to meet global demand. It can produce 100 million doses a month. <p>About Drugs Controller General of India:</p> <ul style="list-style-type: none"> • Drugs Controller General of India is the head of department of the Central Drugs Standard Control Organization of the Government of India. • Responsible for approval of licences of specified categories of drugs such as blood and blood products, IV fluids, vaccines, and sera in India • DCGI also sets standards for manufacturing, sales, import, and distribution of drugs in India. • Comes under the Ministry of Health & Family Welfare. • DCGI lays down the standard and quality of manufacturing, selling, import and distribution of drugs in India. • Acting as appellate authority in case of any dispute regarding the quality of drugs • Preparation and maintenance of national reference standard • To bring about the uniformity in the enforcement of the Drugs and Cosmetics Act. • DCGI also act as Central Licensing Authority (CLA) for the medical devices which fall under the purview of Medical Device Rules 2017. |
| Qimingxing-50, or Morning Star-50 | <p>In News: China's first fully solar-powered unmanned aerial vehicle, Qimingxing-50, or Morning Star-50, has successfully completed its maiden test flight with all onboard systems functioning optimally.</p> <p>The Mechanics:</p> <ul style="list-style-type: none"> • With a wingspan of 164-ft, the drone is a large machine powered entirely by solar panels. • The high-altitude, long-endurance (HALE) UAV can stay airborne for long durations. • Flies above 20-km altitude where there is stable airflow with no clouds. • Helps these drones to make the maximum use of solar equipment to stay functional for extended durations. • In fact, the drone can operate without a break for months, even years. <p>Cross between drone and satellite:</p> <ul style="list-style-type: none"> • The fact that the drone can operate in near-space – 20 km to 100 km above the Earth's surface – makes it capable of carrying out satellite-like functions. • These drones are also referred to as 'High Altitude Platform Stations' or pseudo-satellites. • China already has this capacity, but the Qimingxing-50's long-endurance provides an added advantage to make this capability available over a longer period. |
| Quick Reaction Surface to Air Missile (QRSAM) system | <p>In News: Defence Research and Development Organisation (DRDO) and Indian Army have successfully completed six flight-tests of Quick Reaction Surface to Air Missile (QRSAM) system.</p> <p>Quick Reaction Surface to Air Missile (QRSAM) system</p> <ul style="list-style-type: none"> • It is a short-range surface-to-air missile (SAM) system. • Designed and developed by DRDO to provide a protective shield to moving armoured columns of the Army from enemy aerial attacks. • QRSAM is a canister-based system – stored and operated from specially designed compartments. • The system is capable of detecting and tracking targets on the move and engaging targets with short halts. • Can operate on the move with search and track capability & fire on short halt. |

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| | <ul style="list-style-type: none"> The entire weapon system has been configured on mobile and is capable of providing air defence on the move. It has a range of 25 to 30 km. It also consists of two radars – Active Array Battery Surveillance Radar and Active Array Battery Multifunction Radar – with one launcher. Both radars have 360-degree coverage with “search on move” and “track on move” capabilities. The system uses a single-stage solid propelled missile and has a mid-course inertial navigation system with two-way data link and terminal active seeker developed indigenously by DRDO. |
| Stealth frigate of Project 17A Taragiri | <p>In News: Third stealth frigate of Project 17A Taragiri launched in Mumbai by Mazagon Dock Shipbuilders Ltd. (MDL) with an estimated cost of Project being around ₹25,700 crore.</p> <p>Features:</p> <ul style="list-style-type: none"> Indigenously designed Taragiri will have a state-of-the-art weapon, sensors, an advanced action information system, an integrated platform management system, world class modular living spaces, a sophisticated power distribution system and a host of other advanced features. It will be fitted with a supersonic surface-to-surface missile system and the ship’s air defence capability is designed to counter the threat of the enemy aircraft and the anti-ship cruise missiles. of 3,510 tonnes and is designed by the Indian Navy’s in-house design organisation — the Bureau of Naval Design The ship, 149.02 metre long and 17.8 metre wide, is propelled by a CODOG combination of two gas turbines and two main diesel engines which are designed to achieve a speed of over 28 knots at a displacement of approximately 6,670 tonnes. <p>Structure:</p> <ul style="list-style-type: none"> The ship has been built using integrated construction methodology which involves hull blocks construction in different geographical locations and integration/erection on slipway at MDL. The keel (the timber or steel structure along the base of a ship to increase support & stability) of Taragiri was laid on September 10, 2020, and the ship is expected to be delivered by August 2025. The steel used in the hull construction of P17A frigates is an indigenously developed DMR 249A which is a low carbon micro alloy grade steel manufactured by the SAIL. <p>Background</p> <ul style="list-style-type: none"> The second ship of P17A class Udaygiri was launched on May 17 this year and is expected to start the sea trials during the second half of 2024. The keel of the fourth and the final ship was laid on June 28. |
| CRISPR Bio Technology | <p>In News: India approved a 5-year project to develop CRISPR to cure sickle cell anaemia (it mainly affects tribal population) as this technology has produced flawless results in clinical trials.</p> <p>About CRISPR:</p> <ul style="list-style-type: none"> It is a gene-editing technology that ‘edits’ the genetic code of living organisms using biochemical tools like specific proteins and RNA molecules; by introduction of a new gene, or suppression of an existing gene, through a process described as genetic engineering. |

- **CRISPR** is short for **Clustered Regularly Interspaced Short Palindromic Repeats**, which is a reference to the clustered and repetitive sequences of DNA found in bacteria, whose natural mechanism to fight some viral diseases is replicated in this gene-editing tool.
- It opens up the possibility of **‘correcting’ genetic information** to cure diseases, prevent physical deformities or to even produce cosmetic enhancements.
- Jennifer Doudna and Emmanuelle Charpentier won the Nobel prize for chemistry in 2020 regarding CRISPR.



Applications:

- **Permanent cure to many diseases** such as **genetic** diseases caused by unwanted changes or mutations in genes like sickle cell anaemia, eye diseases including colour blindness, several types of cancer, diabetes, HIV, and liver and heart diseases or **hereditary**
- **Cure to deformities:** arising out of abnormalities in gene sequences, like stunted or slow growth, speech disorders, or inability to stand or walk.
- **Therapeutic solutions:** Not in the form of a pill or drug. Instead, some cells of every patient are extracted, the genes are edited in the laboratory, and the corrected genes are then re-injected into the patient. The changes made are **not passed on to the offspring**
- **Agriculture:** to help develop genetically modified variants with specific desirable traits.

NASA's DART (Double Asteroid Redirection Test) mission

In news: NASA's DART (Double Asteroid Redirection Test) mission will be humanity's **1st planetary defence system test** (i.e., using defence technology in a civilian mission) to **protect Earth from asteroids** that could pose a threat to it in the future.

About DART mission: Aim of the mission is to understand shape and composition of the asteroids based on the change in its orbit and based on the ejected material. DART weighs around 600 kilograms.

- DART will target Didymos till about 50 minutes before impact. Other technologies like the DRACO camera and Roll-Out Solar Arrays (ROSA) will also be tested for future space exploration.
- **Dimorphos:** It is 160-metre-wide and orbits the much larger asteroid Didymos (about 780 metres wide). It poses no actual threat to Earth.
- **Telescopes in use:** Webb Telescope, Hubble and a CubeSat called LICIACube to take measurements of the changes in the system and transmit back images.
- **DRACO**, or Didymos Reconnaissance and Asteroid **C**amera for Optical navigation is a high-resolution camera to capture images of Didymos and Dimorphos while simultaneously supporting DART's autonomous guidance system. It takes 38 seconds for one-way communication.
- **CubeSat, LICIACube** is built by Italian space agency, has 2 cameras and operates autonomously.

Ethereum

In News: Ethereum has undergone a **technical upgrade** and this upgrade is called the **‘Merge’**.

- Ethereum has **changed its algorithm** from the **Proof-of-Work (PoW)** consensus method of setting transactions to the **Proof-of-Stake (PoS)**.

About: PoW algorithms are used in most blockchains. **PoW** is a system of **distributed consensus** that relies on computing power **to prove that someone has put in the required amount of work** to create a valid block **proportional to their influence on the network**. These algorithms create a **trust less system** e., **trust the system** and **not one person** or one organization.

- PoS** is a type of consensus mechanism used to validate cryptocurrency transactions through randomly selected validators. With this system, owners of the cryptocurrency can **stake their coins**, which gives them the **right** to check new blocks of transactions and **add** them to the blockchain. This is known as **concept of staking**.

Significance of the upgrade:

- Increased scalability:** Decreased size of blocks will reduce amount of data that nodes need to process making the network more scalable and easier to process more transactions per second while maintaining the **same level of security**.
- Easy to store:** Make it easier for people running nodes to store the blockchain on **less expensive hardware**. That will make the network **more resistant to spam attacks**
- Reduce the amount of energy required** to secure the network will make it **more environmentally friendly** and attract more users.
- Concept of staking:** meaning locking up your tokens **like depositing money in a savings account**. The more tokens you stake, the **more influence** you have over the network.
- Faster transaction times** due to less gap between blocks
- Low transaction latency**
- No need for hardware mining infrastructure:** due to trust less, distributed consensus algorithm that doesn't require costly hardware.

About Ethereum:

- Launched in 2014 second-largest cryptocurrency in the world
- Ethereum is a **decentralized, open-source blockchain**. **Ether** is the native cryptocurrency of the platform.
- Ethereum was conceived in 2013 by programmer **Vitalik Buterin**.
- Ethereum today has the highest adoption among developers and it is the **primary infrastructure layer of Web3**.

Malaria Vaccine

In News: Malaria booster vaccine shows up to 80 per cent efficacy: Lancet study

- R21/Matrix-M** malaria vaccine is licensed to Serum Institute of India.
- In 2021, University of Oxford reported findings – the vaccine demonstrated efficacy of 77% over 12-months of follow-up.
- This vaccine is the first to meet the **World Health Organization's Malaria Vaccine Technology Roadmap** goal of a vaccine with at least 75% efficacy
- Study involved 450 participants aged 5 to 17 months and recently reported an **efficacy of over 80%**.

About Malaria: Mosquito-borne infectious disease that affects humans and other animals.

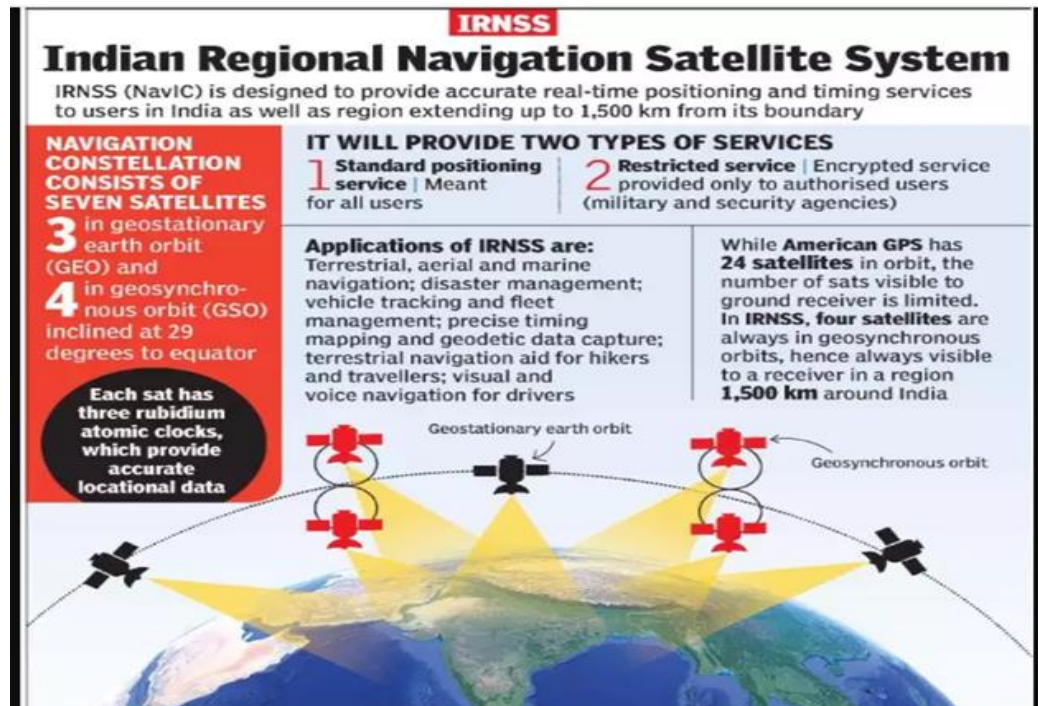
- Caused by single-celled microorganisms of the **Plasmodium** group and spread **exclusively** through bites of **infected Anopheles mosquitoes**. The mosquito **bite** introduces the parasites from the mosquito's saliva **into a person's blood**.
- Symptoms include **fever, tiredness, vomiting, and headaches**. In severe cases, it can cause **jaundice, seizures, coma, or death**.

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| | <ul style="list-style-type: none"> The disease is widespread in the tropical and subtropical regions that exist in a broad band around the equator. Distribution of malaria in India is as follows: |
| Ecological niche modelling | <p>In News: Researchers at the Institute of Himalayan Bioresource Technology, Palampur, Himachal Pradesh used ecological niche modelling strategies to examine the economically important of spice, saffron.</p> <p>About Saffron: <i>Crocus sativus</i>, is a flowering plant, propagated through underground stems called corms.</p> <ul style="list-style-type: none"> It grows best under Mediterranean climate. According to latest reports, Iran grows nearly 90% of the worlds saffron. Uses: Adds flavour to food, helps in healing disorders of the nervous system, acts as an anti-depressant, and also shows anti-cancer. India produces 5% of the worlds saffron and historically, some of the world's most prized saffron has been grown in old lake beds of Kashmir. Agro-climatic conditions: well-drained soil of high pH value (6.3 to 8.3), summer temperatures (when flowers develop) of around 25°C and good soil nutrient availability. Average national yield = 2.6 kg per hectare <p>About ecological niche:</p> <ul style="list-style-type: none"> An ecological niche is the right set of environmental conditions under which an animal or plant species will thrive. A range of ecological niches can occur within an ecosystem. Biodiversity is the result of these niches being occupied by species that are uniquely suited to them. Desert plants, for example, are suited for dry, arid ecological niches because they have the ability to store water in their leaves. Non-living, or abiotic factors like temperature, amount of available light, soil moisture also affect ecological niches. Due to Climate change, the ability of existing species to hold on to their biogeographic niches may be altered. Effect on Agriculture: Practices and crop choices that have worked well for centuries may no longer be ideal thereby affecting availability of food and nutrients, occurrence of predators and competing species. <p>About Ecological Niche modelling: It is a predictive tool for identifying new possibilities using computer algorithms such as — new inhabitants for an existing habitat, or new geographical locations where a desirable plant may grow well.</p> <ul style="list-style-type: none"> It compares data about the environment and makes forecasts about what would be ideal for a given ecological niche. |
| Using 'spooky action at a distance' to link atomic clocks | <p>Context: An experiment carried out by the University of Oxford researchers combines two unique and one can say even mind-boggling discoveries, namely, high-precision atomic clocks and quantum entanglement, to achieve two atomic clocks that are "entangled." This means the inherent uncertainty in measuring their frequencies simultaneously is highly reduced.</p> <p>Quantum Entanglement:</p> <ul style="list-style-type: none"> In quantum physics, entanglement is a weird phenomenon described as a "spooky action at a distance" by Albert Einstein. It is a way of saying that the physical attributes of two independent systems, say spin or frequency, vary in tandem. |

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| | <ul style="list-style-type: none"> Instead of making separate measurements of those attributes which involves a fundamental limitation of precision in measurement, you can compare the two together – measuring the attribute on one system, tells you about the other system in Quantum Entanglement. This in turn improves the precision of the measurement to the ultimate limit allowed by quantum theory. <p>Atomic clocks:</p> <ul style="list-style-type: none"> An atomic clock is a clock that measures time by monitoring the resonant frequency of atoms. It is based on atoms having different energy levels. This phenomenon serves as the basis for the International System of Units' (SI) definition of a second – time taken by 9,19,26,31,770 oscillations of a caesium atom with accuracy of gaining or losing a second only once in about 20 million years. "Optical lattice clocks" uses strontium atoms and are more precise as they lose a second only once in 15 billion years. <p>Proof of concept:</p> <ul style="list-style-type: none"> Quantum networks of this kind have been demonstrated earlier, but this is the first demonstration of quantum entanglement of optical atomic clocks. The key development here is that we could improve the fidelity and the rate of this remote entanglement to the point where it's actually useful for other applications, like in this clock experiment. For their demonstration, the researchers used strontium atoms for the ease in generating remote entanglement. They plan to try this with better clocks such as those that use calcium. We can now generate remote entanglement in a practical way. At some point, it might be useful for state-of-the art systems. <p>Applications:</p> <ul style="list-style-type: none"> Studying the space-time variation of the fundamental constants, probing dark matter, precision geodesy, accurate time keeping in GPS, or monitoring stuff remotely on Mars etc. |
| Flex Fuel Technology | <p>In News: India's first 'flex fuel' car, a Toyota sedan has been developed as part of a new pilot. The nationwide pilot has been initiated as part of a government-led push to car – makers for adopting alternative fuels and to replicate the commercial deployment of this particular technology in other markets such as Brazil, Canada, and the US.</p> <ul style="list-style-type: none"> There are over 21 million flex fuel vehicles in the United States Brazil is the leader in this segment. <p>The Mechanics of Flex Fuel Technology:</p> <ul style="list-style-type: none"> A flex fuel, or flexible fuel, vehicle has an internal combustion engine (ICE), but unlike a regular petrol or diesel vehicle, this can run on more than one type of fuel, or even a mixture of fuels. The ICE can use a blend of petrol and ethanol or methanol and can also run on 100 per cent petrol or ethanol as well. This is made possible by equipping the engine with a fuel mix sensor and an engine control module (ECM) programming that senses and automatically adjusts for any ratio of designated fuels. Flex fuel vehicles have one fuel system, and most components are the same as those found in a conventional petrol-only car. |

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| | <ul style="list-style-type: none"> • Modifications such as special ethanol-compatible components are required to adjust to the different chemical properties and energy content in ethanol or methanol. The ECM is also calibrated to accommodate the higher oxygen content of ethanol. <p>Significance:</p> <ul style="list-style-type: none"> • The use of ethanol blending sharply lowers harmful pollutants such as carbon monoxide, sulphur, and carbon and nitrogen oxides. • It will deleverage the country's dependence on oil imports for transportation • Many flex fuel vehicles have improved acceleration performance when operating on higher ethanol blends. <p>About ethanol production in India:</p> <ul style="list-style-type: none"> • Currently, around 9.5% ethanol blending with petrol has been achieved in fuel dispensed in pumps in most metros and it is likely that the targeted 10 per cent ethanol blending will be achieved by November 2022. • But this is slated for a major bump up, with the government's 2025 target of 20 per cent blending of ethanol in petrol envisaged in its National Biofuel Policy 2018. |
| The Indian Regional Navigation Satellite System/NavIC | <p>Context: The Indian government asked the smartphone makers to enable support for its NavIC navigation system in new devices sold in the country from next year.</p> <p>Global standards body 3GPP has approved India's regional NavIC:</p> <ul style="list-style-type: none"> • Earlier, Global standards body 3GPP, which develops protocols for mobile telephony, approved India's regional navigation system NavIC, developed by Indian Space Research Organisation (ISRO). • The specification approval will boost commercial use of NavIC (Navigation with Indian Constellation) by international and domestic mobile device makers, which means such manufacturers can now mass-produce navigation devices compatible with NavIC so that users of these devices can easily access desi GPS or NavIC signals. • The implications of NavIC acceptance by 3GPP would bring NavIC technology to the commercial market for its use in 4G, 5G and Internet of Things (IoT). • Indian companies and startups will have an opportunity to design integrated circuits (ICs) and products based on NavIC <p>What is 3GPP:</p> <ul style="list-style-type: none"> • It comprises seven telecommunications standard development organisations (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC) from across the world and provides their members with a stable environment to produce specifications that define 3GPP technologies. • 3GPP currently has global navigation satellite system support from BDS (Chinese), Galileo (European), GLONASS (Russian) & GPS (US) for cellular positioning system. <p>About NavIC:</p> <ul style="list-style-type: none"> • The Indian Regional Navigation Satellite System, with an operational name of NavIC, is an autonomous regional satellite navigation system that provides accurate real-time positioning and timing services. It covers India and a region extending 1,500 km around it, with plans for further extension • NavIC, or Navigation with Indian Constellation, is an independent stand-alone navigation satellite system developed by the Indian Space Research Organisation (ISRO). • It became operational in 2018. |

- At full functioning , IRNSS will provide two types of services, namely, **Standard Positioning Service (SPS)** which is provided to all the users and **Restricted Service (RS)**, which is an encrypted service provided only to the authorised users.
- The IRNSS System is expected to provide a position accuracy of better than 20 m in the primary service area.



Applications of IRNSS:

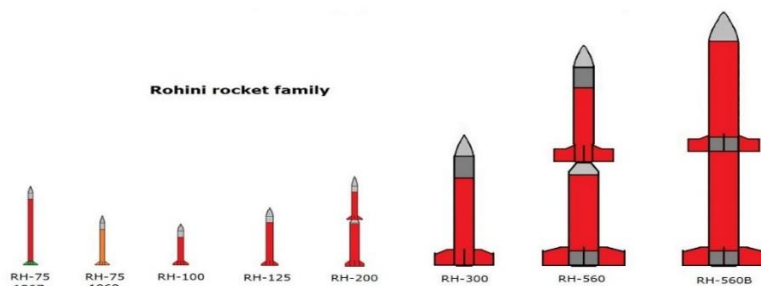
- Terrestrial, Aerial and Marine Navigation
- Disaster Management
- Vehicle tracking and fleet management
- Integration with mobile phones
- Precise Timing
- Mapping and Geodetic data capture
- Terrestrial navigation aid for hikers and travellers
- Visual and voice navigation for drivers

Rohini RH-200 sounding rocket

In News: The Indian Space Research Organisation (ISRO) hopes to achieve a remarkable feat — the 200th successful launch of the Rohini RH-200 sounding rocket in a row.

About the rocket: Sounding rockets are **one or two stage solid propellant rockets** used for **probing the upper atmospheric regions** and for space research developed the **ISRO**.

- RH-200 is a **3.5-metre-tall two-stage rocket** capable of climbing to a height of **70 km** bearing scientific payloads.
- The first and second stages of RH-200 are powered by **solid motors**.
- The '200' in the name denotes the **diameter** of the rocket in mm.
- Other operational Rohini variants are RH-300 Mk-II and RH-560 Mk-III.
- The **first RH-200 to use a new propellant based on hydroxyl-terminated Polybutadiene (HTPB)** was successfully flown in 2020, while the previous versions had used a polyvinyl chloride (PVC)-based propellant.



About sounding rockets:

- Sounding rockets have been used for a variety of experiments, including those on phenomena related to **eclipses**.
- The **first sounding rocket** was the **American Nike-Apache** – launched in 1963.
- The ISRO launched its own version – **Rohini RH-75** – in **1967**.
- **The sounding rocket programme** was the bedrock on which the edifice of launch vehicle technology was built.
- Today, these small rockets are launched both from the Thumba Equatorial Rocket Launching Station (TERLS) and the Satish Dhawan Space Centre, Sriharikota.



MISCELLANEOUS

**New Naval Ensign (flag)**

In News: Prime Minister of India unveiled the new Naval Ensign (flag) at Kochi, which bears the seal of Chhatrapati Shivaji Maharaj, who laid the foundations of a modern navy.



How does the Indian Navy identify with Shivaji (reign 1674-80) and the great Maratha admiral Kanhoji Angre (1669-1729), and how did they ensure Maratha supremacy of the seas?

- Chhatrapati Shivaji Maharaj put **great emphasis on sea-faring prowess**, and laid the **foundations of a modern naval force in the 17th century**.
- The Indian Navy has **named a training establishment in Lonavla as INS Shivaji** and a shore based logistics and administrative hub of Western Naval Command as **INS Angre after Kanhoji Angre, the acclaimed Maratha naval commander**.
- The **use of the octagonal design of the seal of Shivaji on the new Naval Ensign** is a formal stamp on the umbilical ties of the Indian Navy with the navy of the Maratha empire.

Extent of naval prowess

- Shivaji's strategic thought ensured that a **strong naval presence was established along the Konkan coast** to protect the sea trade of the Maratha empire.
- The navy under Shivaji was so strong that the Marathas could hold their against the British, Portuguese and Dutch.
- **Shivaji built ships in towns such as Kalyan, Bhivandi, and Goa, both for trade and to establish a fighting navy.**
- He also built a number of **sea forts and bases for repair**, storage and shelter. Shivaji fought many lengthy battles with **Siddis of Janjira** on coastline.
- He started trading with foreigners on his own after possession of eight or nine ports in the Deccan.

Kanhoji Angre

- Kanohji Angre was **the commander of Maratha navy**, and is credited with laying a **strong naval foundation which ensured that the Marathas were a sea-faring power** to reckon with.
- Kanhoji is credited with **holding his own against the English, Portuguese and Dutch** naval forces.
- He ensured that the merchants plying their trade for the Maratha empire were protected on the seas.
- He set up a **base in Colaba** with more bases at Suvarndurg and Vijaydurg near Ratnagiri.

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| | <p>Siddis of Janjira:</p> <ul style="list-style-type: none"> Janjira State was a princely state in India during the British Raj. Its rulers were a Siddi dynasty of Habesha descent and the state was under the suzerainty of the Bombay Presidency. Janjira State was located on the Konkan coast in the present-day Raigad district of Maharashtra. |
| Nano-Urea | <p>In news: Despite being fast tracked for commercial application, nano-urea has yet to be fully tested. Nano-urea approval was granted in February 2021.</p> <ul style="list-style-type: none"> Nano-urea is developed by the Indian Farmers and Fertiliser Cooperative (IFFCO) a multi-state cooperative society (based in New Delhi) and promoted by the government as a panacea to reduce farmer reliance on packaged urea. <div> </div> <p>Advantages over conventional urea:</p> <ul style="list-style-type: none"> In the field trials, it was claimed that a single half-litre bottle of the liquid (~ Rs 240 and is good for an acre of crop) can compensate for a 45 kg sack of urea granules (costs around ₹3,000 though it is made available to the farmer at ₹242). Apart from significantly enhancing farmers' income by lowering input and storage costs, nano urea liquid promises to increase agricultural yield and productivity. Nano urea liquid also promises to give a long-term solution for plant nutrition by increasing crop nutrient efficiency while lowering soil, water, and air pollution. It is very efficient to use because there is no wastage in application of Nano urea. Therefore, its efficacy is more than 80 per cent, whereas the conventional urea efficacy is only 30 per cent to 40 percent. According to the Union Ministry of Chemicals and Fertilisers, by 2025, India's domestic urea production (conventional + nano-urea) would mean India would be self-sufficient in the manufacture of urea. This means, India would no longer require the 90 lakh tons that it imported every year and would save the country close to ₹40,000 crore. |
| Dark Sky Reserve | <p>In News: In a first-of-its-kind initiative, the Department of Science & Technology (DST) has announced the setting up of India's first Dark Sky Reserve in Hanle, Ladakh.</p> <ul style="list-style-type: none"> Hanle, which is about 4,500 metres above sea level, hosts telescopes and is regarded as one of the world's most optimal sites for astronomical observations. A visitor centre would also be set up to inform people not only about astronomy but also the wildlife and plant life in the adjoining Changthang Wildlife Sanctuary. <p>A Dark Sky Reserve:</p> <ul style="list-style-type: none"> It is a designation given to a place that has policies in place to ensure that a tract of land or region has minimal artificial light interference. |

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| | <ul style="list-style-type: none"> The International Dark Sky Association is a U.S.-based non-profit that designates places as International Dark Sky Places, Parks, Sanctuaries and Reserves, depending on the criteria they meet. <p>Significance:</p> <ul style="list-style-type: none"> Help in boosting local tourism and economy through interventions of science and technology. To promote Astro-tourism – <p>Hanle: The Himalayan Chandra Telescope (HCT), High Energy Gamma Ray telescope (HAGAR), the Major Atmospheric Cherenkov Experiment Telescope (MACE) and GROWTH-India are prominent telescopes located at the Hanle observatory.</p> |
| National List of Essential Medicines (NLEM) 2022 | <p>In news: Recently, twenty-six drugs, including the common gastrointestinal medicines ranitidine and sucralfate, have been deleted from the revised National List of Essential Medicines (NLEM) 2022.</p> <p>Keys points:</p> <ul style="list-style-type: none"> The National List of Essential Medicines was first compiled in 1996 and it was revised thrice earlier in 2003, 2011, and 2015. Three hundred and eighty-four drugs find place in the NLEM, 2022 with the addition of 34 drugs, while 26 from the previous list have been dropped. <p>What is NLEM?</p> <ul style="list-style-type: none"> As per the World Health Organisation (WHO), Essential Medicines are those that satisfy the priority health care needs of the population. Ministry of Health and Family Welfare hence prepared and released the first National List of Essential Medicines of India in 1996 consisting of 279 medicines. The list is made with consideration to disease prevalence, efficacy, safety and comparative cost-effectiveness of the medicines. Such medicines are intended to be available in adequate amounts, in appropriate dosage forms and strengths with assured quality. They should be available in such a way that an individual or community can afford. <p>NLEM in India:</p> <ul style="list-style-type: none"> Drugs listed under NLEM — also known as scheduled drugs — will be cheaper because the National Pharmaceutical Pricing Authority (NPPA) caps medicine prices and changes only based on wholesale price index-based inflation. The list includes anti-infectives medicines to treat diabetes such as insulin — HIV, tuberculosis, cancer, contraceptives, hormonal medicines and anaesthetics. Companies selling non-scheduled drugs can hike prices by up to 10 per cent every year. Typically, once NLEM is released, the department of pharmaceuticals under the ministry of chemicals and fertilisers adds them in the Drug Price Control Order, after which NPPA fixes the price. |



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MAINS



POLITY & GOVERNANCE



Code of Conduct for Civil Servants

Context:

A senior IAS officer from Telangana, tweeted from her personal account in support of Ms. Bano ([Bilkis Bano case](#)) and questioned the Gujarat government's decision, sparking off a row over whether she was in breach of the Central Civil Services (Conduct) Rules of 1964 and reviving the debate on the freedom of civil servants to express their personal views on matters of law and governance.

Who are civil servants and what is their expected role?

- In a modern democracy, a civil servant is an **official in the service of the people and is recruited based on predetermined qualifications.**
- They are **responsible for managing the resources** given to them by the government and making use of them **efficiently and effectively.**
- A **sound parliamentary system of government** requires civil servants to maintain their **integrity, fearlessness, and independence.** One of the most important functions of the civil service, as stated by the head of the Canadian Public Service, is to **"speak truth to power."**
- The **crisis of ethics and accountability** in civil servants **exposes many issues** related to the **structure of the code of conduct, constitutional protection, the politician-bureaucratic nexus, and their political victimisation.**

To address these **issues and maintain integrity and discipline amongst civil servants**, various reform committees such as the **Santhanam Committee (1964), Hota Committee (2004), and the most recent Second Administrative Reform Committee Report (2005)** have been formed.

Code of conduct for civil servants

- A **legally enforceable code of conduct sets out the standards of behaviour** expected of those working in the public service.
- The **Civil Service code outlines the Civil Service's core values, and the standards of behaviour** expected of all civil servants in upholding these values.
- In India, the current set of ethical norms are the Conduct Rules, contained in the **Central Services (Conduct) Rules, 1964** and analogous rules applicable to members of the **All India Services or employees of various State Governments.**
- The code of behaviour as enunciated in the Conduct Rules contain general norms like **'maintaining integrity and absolute devotion to duty'**

Freedom of speech and expression:

- **Article 19 is recognized as a Fundamental Right** which provides an individual or a community, the **freedom to articulate their thoughts and opinions without the fear of a legal sanction or retaliation.**
- Article 19(1) (a) of the Constitution of India states that **"all citizens shall have the right to freedom of speech and expression"**.
- The exercise of this right is subservient to **"reasonable restrictions"** being imposed under Article 19(2) of the Constitution of India.
- Article 19 (2) **contains the grounds on which restrictions** on the freedom of speech and expression can be imposed: Security of State, Friendly relations with foreign states, Public Order, Decency or morality, Contempt of Court, Defamation and Incitement to an offence

To what extent do the Service Conduct Rules impose restrictions on the Freedom of Speech of Government employees?

- **Freedom of speech and expression is a Fundamental Right**, however, it is **not absolute** in nature, as there are **reasonable restrictions** which can be imposed.
- This is to ensure that the **Indian bureaucracy, which has been perceived as a non-political organization, maintains neutrality**.
- The restrictions are placed to **ensure that there is space for healthy criticism**. However, **emotional outbursts**, which could turn into criticism is governed, as these could lead to the public losing faith in the Government.

Recent judgements by Tripura High court and Kerala High court gave a different direction to this debate

- In its judgment, the **Tripura High Court** has mentioned that **government servants are entitled to hold and express their political beliefs**, subject to the restrictions laid under Rule 5 of the Tripura Civil Services (Conduct) Rules, 1988.
- In its judgment, the **Kerala High Court** has mentioned, **one cannot be prevented from expressing his views merely because he is an employee**. In a democratic society, every institution is governed by democratic norms.
- **Healthy criticism** is a better way to govern a public institution.
- **Restrictions applied** through the service rule, that come in conflict with Article 19 (1)(a), right to free speech **shall override unless the rules in question are covered under Article 19 (2)**, the framework that provides for reasonable restrictions.

Way Forward:

The right to Freedom of Speech and Expression plays a key role in the formation of public opinion on the political, social and economic matters. It is, therefore, quintessential for the functioning of democratic processes. Hence, a **fair and constructive criticism is a welcome** step even if it comes from the civil servant. But the **criticism should be in consonance with the principle enshrined in the Constitution of India**.

Places of Worship Act of 1991

Context: The ongoing row over the Gyanvapi Masjid that is situated adjacent to the Kashi Vishwanath Temple in Varanasi, Uttar Pradesh, has again brought to the fore the controversy around **The Places of Worship (Special Provisions) Act, 1991**.

Background – Gyanvapi Masjid Row:

1991: A group of priests in Varanasi petitioned in court, seeking permission to worship on the Gyanvapi premises.

2019: The Allahabad High Court ordered a stay on an ASI survey that was requested by the petitioners.

2022 (current): Five Hindu women sought to routinely worship Shringar Gauri and other idols within the Gyanvapi mosque complex (behind the western wall of the premises).

The Gyanvapi Masjid Survey 2022

- **Hindu Side:** Claimed that a 'Shivling' was found inside a reservoir on the mosque complex
- **Muslim side:** Dismissed the claim and said it was only a fountain.
- The mosque committee's plea argued that the fresh suits filed in 2021 citing the "right to Worship" were "barred by The Places of Worship Act, 1991," and were an attempt to revive the dispute which had been put to rest by this law.

The Places of Worship Act, 1991

Seeks to prohibit the conversion of a place of worship and maintain its religious character as was at the time of India's Independence on August 15, 1947.

- **In force:** Since July 11, 1991
- If any suit, appeal, or other proceedings concerning the conversion of the religious traits of any place of worship, existing on August 15, 1947, is pending before any court, tribunal or other authority, the same shall abate. It further stipulates that no fresh proceedings on such matters shall be initiated.
- The Act prohibits conversion of a religious place in any manner, even to cater to a particular section of the religion.

- The Act exempts any place of worship, which is “an ancient and historical monument or an archaeological site or remains covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958 (24 of 1958) or any other law for the time being in force”.
- **Penal Provision:** Anyone contravening the prohibition on converting the status of a place of worship is liable to be imprisoned for up to three years, and a fine. Those abetting or participating in a criminal conspiracy to commit this offence will also get the same punishment.

Challenge to the Places of Worship Act

Challenged by: BJP leader and lawyer Ashwini Kumar Upadhyay challenged the Places of Worship Act, 1991, last year in the Supreme Court.

Argument: The law was a contravention of the principle of secularism as laid down by the Constitution of India.

- The Centre has barred remedies against illegal encroachment on places of worship and pilgrimages and now Hindus, Jains, Buddhists, Sikhs cannot file a suit or approach a high court under Article 226.
- Therefore, they won't be able to restore their places of worship and pilgrimage including temple endowments in the spirit of Articles 25-26 and the illegal barbarian acts of invaders will continue in perpetuity.

Pertained to: A legal battle before a trial court over “reclaiming the birthplace of Lord Krishna in Mathura”, which was directly affected by the restrictions under the 1991 Act.

What are the exception under the act?

- An exception was made to keep the Babri Masjid-Ram Janmabhoomi dispute out of its ambit as the structure was then the subject of litigation.
- The 1991 Act will not apply to ancient and historical monuments and archaeological sites and remains that are covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958.
- It will also not apply to any suit that has been finally settled or disposed of, any dispute that has been settled by the parties before the 1991 Act came into force, or to the conversion of any place that took place by acquiescence.

What are the grounds of challenge?

- **Constrains Judicial Remedy:** The act amounts to taking away the right of the people to seek justice through the courts and obtain a judicial remedy. The petitioner argues that the Act takes away the rights of communities such as Hindus, Sikhs, Buddhists and Jains to reclaim the sites of their places of worship through legal proceedings.
- **Contention on Cut-off date:** The petitioner also contends that the cut-off date of August 15, 1947, is arbitrary and irrational.
- **Issue of Exemption:** The petition contends that the legislation legalises the actions of invaders in the past who demolished places of worship. It wonders how the law could exempt the [birthplace of Ram](#), but not that of Krishna.
- **Restriction on Fundamental Right to Practise Religion:** The petition also said the law violates the right to practise and propagate religion, as well as the right to manage and administer places of worship.
- **Not in spirit of Secularism:** Further, petition has argued that that act goes against the principle of secularism and the state's duty to preserve and protect religious and cultural heritage.

What has the SC said on the status freeze?

- In its final verdict on the [Ayodhya dispute](#), the Supreme Court had observed that the Act “imposes a non-derogable obligation towards enforcing our commitment to secularism”.
- The court went on to say: “non-retrogression is a foundational feature of the fundamental constitutional principles, of which secularism is a core component.”
- The court described the law as one that preserved secularism by not permitting the status of a place of worship to be altered after Independence.
- In words of caution against further attempts to change the character of a place of worship, the five-judge Bench said, “**Historical wrongs cannot be remedied by the people taking the law in their own hands. In preserving the character**

of places of public worship, Parliament has mandated in no uncertain terms that history and its wrongs shall not be used as instruments to oppress the present and the future.”

Europe's Energy Crisis

Context: With the war between Russia and Ukraine having crossed the 200-day mark, Europe is facing a full-blown, unprecedented energy crisis, and the winter season is not too far away.

What is the energy situation in Europe?

- Countries in the European Union (and even the United Kingdom) are “now confronted with astronomic electricity prices for households and companies, and with an enormous market volatility.”
- A regular household's energy bill can't be more than £2,500 a year from 1 October (from £1,971 in the summer). Prior to this intervention, a regular household would have had to pay £3,549 per year due to the 80 percent spike.
- On the other hand, Germany which, before the invasion, imported around 55 percent of natural gas and more than 30 percent of its crude oil supplies from Russia, has now announced a €65 billion (£56.2 billion) relief package with respect to the rising energy costs in the country.
 - It includes one-off payments to vulnerable businesses and tax breaks to businesses dealing mostly with energy.

How much did Europe rely on Russia for energy before the invasion, and what does that reliance look like now?

- 90 percent of Europe's energy needs are imported. It relied on Russia, more than any other country, for around 40 percent of its gas. This has now come down to a mere nine percent, according to EU's announcement.
- Based on the pre-invasion numbers, in absolute terms, Germany and Italy imported the largest quantities of gas from Russia, at 46 bcm and 29 bcm respectively.
- Most of this gas is supposed to be transported through two pipelines:
 - The **Yamal – Europe** pipeline, which supplies gas to Poland and Germany via Belarus.
 - The **Nord Stream**, predecessor to the Nord Stream 2, which supplies gas to Germany via Ukraine (NS2 bypasses Ukraine). Gas supplies from this pipeline have been cut off for the moment.

How has Europe reacted to Russia cutting its gas supplies?

- The Russian gas threat, therefore, forced the European Union to fill up its storage sites to an 80% target by November 2022, which is when the European heating season begins. They reached this deadline ahead of time. In the years following 2022, the target must be increased to 90 percent.
- Germany, which wanted to hit 85 percent storage by October, is running ahead of schedule with 88 percent storage at the moment. France is at 94 percent, and so is Denmark.
- Ukraine's ability to survive the winter will also depend on its international allies' necessary financial support for it to import the amount of gas it needs.
- However, it also depends on whether Russia chooses to destroy the gas infrastructure in the country. In the first week of September, the Russian military launched retaliatory strikes in Ukraine (after the latter regained territory) that targeted the power grid and the heat power plant, causing an electricity blackout in Kharkiv and other areas.

What are the other Europe's Alternatives?

- Germany has been searching for alternatives to Russian gas ever since it halted the certification of the Nord Stream 2. It could turn towards Britain, Denmark, Norway, and the Netherlands.
- Norway has been increasing its production levels to help the EU countries achieve their target of ending reliance on Russian fossil fuels by the year 2027.
- Another option is to get more gas from Algeria and Azerbaijan, which currently supply about 20 percent and 10 percent of Europe's gas respectively.
- Then there is liquefied natural gas. The United States has said that it can provide 15 bcm of LNG to the EU this year. This is still far less than Russia's 155 bcm supply last year (less than even 10 percent of it in fact).
- The problem here is that an increase in supply of LNG to Europe would result in a reduction of LNG supply elsewhere until production increases (constructing a new production facility for LNG takes more than two years).

- Reducing consumption is something that Europe has to bank on. The EU has agreed to cut gas consumption by 15 percent. At the same time, it has to manage the prices as well.

Indian great anaemia mystery

What is Anaemia?

- The WHO defines anaemia as **a condition in which the number of red blood cells or the concentration of haemoglobin within them is lower than normal. This compromises immunity and impedes cognitive development.**
- More than **half of all women and children in India are anaemic**, and that number has increased in the last three years. Between 2005 and 2015, anaemia decreased in India, albeit marginally.
- But recent data from the **National Family Health Survey (NFHS-5)** shows a reversal of those gains: **Anaemia rates increased from 53% to 57% in women and from 58% to 67% in children in 2019-21.**

What could be causing this dire result?

- The breadth of the NFHS survey allows us to investigate factors traditionally used to explain the prevalence of micronutrient outcomes such as anaemia.
- Grain-focused diets, with relatively lower consumption of iron-rich food groups** such as meat, fish, eggs, and dark green leafy vegetables (DGLF), may be associated with higher levels of anaemia.
- However, the **percentages of children and women consuming iron-rich food groups** have increased from NFHS-4 to NFHS-5.
- High levels of anaemia** are also often associated with underlying factors such as **poor water quality and sanitation conditions** that can negatively affect iron absorption in the body.
 - However, both factors improved from NFHS-4 to NFHS-5. The percentage of the population living in households using improved sanitation facilities **increased from 48.5% to 70.2%**, while the percentage of households with access to **improved sources of drinking water improved from 94.4% to 95, 9%.**
- Women's empowerment** is another factor that can play an important role in determining the quantity and quality of food intake within the household.
 - Women's ownership of assets** (such as land or a house), the ability to make decisions about the use of income, access to resources such as savings or credit, and participation in key household decisions can translate into increased awareness of and access to diverse, nutritious diets.
 - But women's empowerment in such domains has also improved from NFHS-4 to NFHS-5, suggesting that women's decision-making alone cannot explain the increase in anaemia.
- Finally, **the provision of health and nutrition interventions** plays an important role in the prevalence of anaemia.
 - But women's folic acid intake during pregnancy and access to prenatal care has improved in the last five years. It is surprising, then, how anaemia rates have increased not only in mothers but also in children under the age of five.

Conclusion:

- Rising numbers of anaemia make it almost impossible to meet the **targets of the Anaemia Mukta Bharat programme**: a reduction of 3% per year in all age groups from 2015-16 to 2022.
- India is also **behind in achieving the global nutrition target** for anaemia in women of reproductive age: a 50 percent decrease from the 2012 baseline by 2030.
- Thus, need of the hour is for rigorous research and informed policymaking that **engages diverse stakeholders** such as public health professionals, program implementers, policymakers, and other experts in this field. The data on anaemia tells us that something has gone wrong. It is critical that we find out what has changed and move quickly to address it.

Federal Fabric under Threat

"Once is happenstance. Twice is coincidence. Three times is enemy action," Ian Fleming famously wrote in the **James Bond classic Goldfinger**. Change the words "**enemy action**" to "**trend**" and it will explain what's going on between **Maharashtra and Gujarat**.

Context: Maharashtra's repeated loss of projects to Gujarat appears to indicate **Centre's preference**, damage to **federal structure including recently concluded Vedanta – Foxconn project**.

- Earlier the projects such as **International Financial Services Centre (IFSC)**, **Nanar oil refinery**, a joint venture between **India's state-owned PSUs and Saudi Arabia's Aramco**, and the **National Academy of Coastal Policing** are proposed to set up in Maharashtra but later moved to Gujrat.

This, as the legendary Fleming notes, is enough to underline a trend that seriously undermines our **federal structure**. It's always heartening to see **states vying for investments**, but it's equally damaging to see the **powerful Centre favouring one state over the other**.

It not only makes the **battle unfair, but also threatens the federal fabric of the nation**. However, Maharashtra politicians undoubtedly owe explanations for their consistent flip-flop over mega projects, beginning with Enron's ambitious power project.

In this context let us understand Federal structure of India:

The Federal Structure of India:

- **Nature of Indian Federalism:** A Federal theorist **K.C. Wheare** has argued that the nature of Indian Constitution is **quasi-federal in nature**.
 - The SC in **Sat Pal v State of Punjab and Ors (1969)**, held that the Constitution of India is more **Quasi-federal** than federal or unitary.
- **Constitutional Provisions for Ensuring Federalism:** The respective legislative powers of states and Centre are traceable to **Articles 245 to 254 of the Indian Constitution**.
 - The lists in the **7th Schedule of the Constitution** — Union, State and Concurrent also exemplify equitable share of powers, wherein each level of government has its own sphere, enabling context-sensitive decision-making.
 - **Article 263** provided for the establishment of an **Inter-State Council** for smooth transition of business between the Union and states and resolution of disputes.
 - **Article 280** provided for the constitution of the **Finance Commission** to define the financial relationship and terms between the **Union and states**.
 - Also, the institutions for **local self-government** were added through the **73rd and 74th amendments**, to strengthen the grass roots democracy.
- **Institutions for Federalism:** The Planning Commission always had space for discussion on issues concerning the federal nature of the polity and was sensitive to the different developmental requirements of states.
 - The **inter-state tribunals**, the **National Development Council** and other informal bodies have served as vehicles of consultations between the Union, states and UTs.
 - These bodies have been instrumental in **tackling difficult issues democratically through deliberations** while upholding the cooperative spirit between the Union and states.

Challenges in Maintaining the Federal Spirit of India

Apart from above mentioned tussle between Gujrat and Maharashtra, the following are the major challenges to cooperative federalism in India.

- **Ineffective Functioning of Several Bodies:** The Planning Commission has been scrapped; the Inter-State Council has met only once in the last seven years while the National Development Council has not met at all.
- **Issues in Tax Regime:** The misconceived Goods & Services Tax (GST) has already taken away much of the autonomy available to states and has made the country's indirect tax regime unitary in nature.
- **During the pandemic**, the Union government repeatedly violated the compensation guarantees to the **States under the GST regime**. **Delay in paying the States their due** worsened the impact of the economic slowdown.
- **Encroachments Upon States' Autonomy in State Subjects:** Many important and politically sensitive decisions have been taken in the past few years, without reference to, and consultation with, the concerned states such as:
- **Parliament legislated on "agriculture" in the state list**, to enact the three contentious farm laws, overstepping its jurisdiction and imposing a law on the states.
- **The New Education Policy 2020** has also been flagged as encroaching on the federal nature of the polity.
- Additionally, the **BSF's jurisdiction** was extended in Assam, West Bengal, and Punjab without any consultation with the concerned states.

- **Impact of Covid-19:** The states were curtailed in aspects relating to Covid-19 management such as procurement of testing kits, vaccination, the **use of the Disaster Management Act, 2005, and the unplanned national lockdown.**

Way Forward:

- **Recognition of Federalism:** It should be underlined that **Article 1 of the Constitution** declares that “**India that is Bharat is a union of states**”, and that devolution of powers is necessary in such a setting.
 - A conscious recognition of the federal character of India’s polity is essential to protect its national character.
- **Strengthening Inter-State Relations:** State governments shall consider **deploying human resources** to support them in preparing responses to the consultations initiated by the Union, especially with a focus on the **federalism angle.**
- **Bringing Reforms while Balancing Federalism:** A diverse country India requires a proper balance between the pillars of federalism (autonomy of states, centralisation, regionalisation etc).
 - Extreme political centralisation or chaotic political decentralisation shall be avoided as both lead to the weakening of Indian federalism.
- **MUST READ:** [Uncooperative Federalism](#)
- **MUST READ:** [Asymmetrical federalism](#)

CBI and its Troubles

Context: Time and again, Supreme Court has called out on the partisan nature of CBI, India’s premier investigative agency. CBI has been termed as “caged parrot” pointing towards subordination of agency to the executive and its disastrous consequences for the cause of justice.

What is the status of CBI?

- The CBI was established as the Special Police Establishment in 1941, to investigate cases of corruption in the procurement during the Second World War.
- Later, the Santhanam Committee on Prevention of Corruption recommended the establishment of the CBI. As a result, it was set up in 1963 by a **resolution of Union Home Ministry.**
 - The Special Police Establishment (which looked into vigilance cases) setup in 1941 was also merged with the CBI
- Later, it was transferred to the Ministry of Personnel and now it **enjoys the status of an attached office.**
- The CBI is **not a statutory body.** It derives its powers from the Delhi Special Police Establishment Act, 1946.
- The CBI is the **main investigating agency** of the Central Government.
- The CBI investigates crime of corruption, economic offences and serious and organized crime other than terrorism.

What are the functions of CBI?

- Investigating cases of corruption, bribery and misconduct of Union govt employees
- Investigating cases relating to infringement of fiscal and economic laws
- Investigating serious crimes, having national and international ramifications, committed by organised gangs of professional criminals.
- Coordinating activities of the anticorruption agencies and various state police forces
- Taking up, on the request of a state government, any case of public importance for investigation.
- It takes up investigation of conventional crimes like murder, kidnapping, rape etc., on reference from the state governments or when directed by the Supreme Court/High Courts.
- Maintaining crime statistics and disseminating criminal information.
- The CBI acts as the “**National Central Bureau**” of Interpol in India.
- The Central Government can authorize CBI to investigate such a crime in a State but only with the **consent of the concerned State Government.**

What types of cases are handled by CBI?

1. **Special Crimes** – for investigation of serious and organized crime under the Indian Penal Code and other laws on the requests of State Governments or on the orders of the Supreme Court and High Courts – such as cases of terrorism, bomb blasts, kidnapping for ransom and crimes committed by the mafia/the underworld.

2. **Economic Crimes** – for investigation of major financial scams and serious economic frauds, including crimes relating to Fake Indian Currency Notes, Bank Frauds and Cyber Crime, bank frauds, Import Export & Foreign Exchange violations, large-scale smuggling of narcotics, antiques, cultural property and smuggling of other contraband items etc.
3. **Anti-Corruption Crimes** – for investigation of cases under the Prevention of Corruption Act against Public officials and the employees of Central Government, Public Sector Undertakings, Corporations or Bodies owned or controlled by the Government of India.
4. **Suo Moto Cases** – CBI can suo-moto take up investigation of offenses only in the Union Territories.
 - The Central Government can authorize CBI to investigate a crime in a State but only with the consent of the concerned State Government.
 - The Supreme Court and High Courts, however, can order CBI to investigate a crime anywhere in the country without the consent of the State.

What are the issues with CBI?

Structurally constrained: The CBI has been stymied both by the legal structure within which it functions, and by the changes made by governments in the Rules governing it. Over the years, these have progressively made the agency subservient to the Union government.

- To prosecute any MLA, state minister, or MP, the CBI **needs sanction** from the Speaker of the state Assembly (in case of MLAs) or the Governor (for state ministers).
- In the case of an MP, sanction is sought from the Speaker of Lok Sabha or Vice Chairman of Rajya Sabha.
- Since all these **sanctioning authorities have links to the ruling dispensation**, Opposition parties feel they are unfairly targeted.
- It is understood that the agency has no freedom to probe anyone on its own. It is the government, at the Union or in states, or the court, which will decide who will be investigated.

Withdrawal of Consent due to Federal Politics

- As many as nine states have **withdrawn general consent to the CBI**. Most of these are Opposition-ruled states, which have alleged that the CBI is being used by the Centre to target the Opposition.
- Since CBI needs consent of a state to probe offences in the state's jurisdiction, a general consent is given to the agency so that consent is not required for every individual case.
- Withdrawal of consent means CBI cannot investigate even a central government employee stationed in a state without the consent of the state government.
- However, this is not unique to the NDA regime. Throughout the history of the agency, several states — including Sikkim, Nagaland, Chhattisgarh, and Karnataka — have withdrawn general consent.

No Ban on Post-Retirement Appointments

- Critics have also pointed to the way in which successive governments have used the lure of post-retirement jobs to make CBI Directors toe their line.
- Former CBI Director Ashwini Kumar was appointed Governor of Nagaland by the UPA in 2013. Other former CBI chiefs got post-retirement jobs as members of the National Human Rights Commission under the UPA.
- The NDA government in **2021 amended the DSPE Act to give the CBI Director a tenure of five years**, but added a caveat that after completion of the SC-mandated two-year tenure, the Director would get an extension of tenure each year at the pleasure of the government. Many saw this as an attempt to make the Director toe the line of government

Inadequate Administrative Capacity

- The agency is dependent on the home ministry for staffing since many of its investigators come from the Indian Police Service. The CBI also relies on the ministry of law for lawyers and also doesn't have functional autonomy to some extent.
- The CBI, run by IPS officers on deputation, is also vulnerable to the government's ability to manipulate the senior officers because they are dependent on the Central government for future postings.

Outside the ambit of Right to Information

- CBI is placed in the 2nd Schedule, Section 24 of the Right to Information Act. It provides an exception to obtaining information from intelligence and security organizations specified in the second schedule to the Right to Information Act or any information furnished by them to the government.

Declining Trust of Public on the institution

- Chief Justice of India (CJI) N V Ramana lamented that the agency had gone from being the people's most trusted to the subject of deep public scrutiny.
- Earlier in 2019, then CJI Ranjan Gogoi had questioned the role of the CBI in "politically sensitive" cases, and said that it reflected "a deep mismatch between institutional aspirations" and "governing politics".

How has Judiciary played its role in reforming CBI?

- The landmark 1997 Vineet Narain judgment of the Supreme Court (**Vineet Narain & Others vs Union of India & Anr**) dealt with this issue in detail. The Supreme Court fixed the tenure of the CBI Director at two years.
- The Rajiv Gandhi government, through what is known as the "single directive", introduced a provision in The Delhi Special Police Establishment (DSPE) Act, 1946, (from which the CBI derives its powers) which barred CBI from investigating officials of joint secretary level and above without permission from the government.
- This was struck down by **Vineet Narain case**, but was reintroduced by the Atal Bihari Vajpayee government.
- After it was struck down again by the Supreme Court in 2014, the Modi government introduced **Section 17A into the Prevention of Corruption Act** through an amendment.
- Higher Judiciary has often **reprimanded investigators** for their sloppiness and deviation from ethics. This has brought in some sort of fear among investigators & prevented the agency from losing the trust of the public.
- **Meticulous supervision by the Supreme Court** in some important cases has made difference to the honesty of investigation.
- There is **palpable fear among CBI officers** that the judiciary could intervene were an aggrieved person to prove that an investigator had been arbitrary and dishonest.

What is the way ahead?

- Investigators need to stand up to unethical pressures in order not to betray the trust reposed in them by the public.
- Courts need to enforce discipline and adherence to the law. If investigators deviated from the path of objectivity and neutrality, they should pay for it dearly.
- If the CBI has to tread the path of virtue, it should have the **strongest leader with a distinct belief in the law and ethics**.
- There needs to be a strong and virtuous leader who will not only be honest but also **protect his honest deputies** if and when confronted by an unscrupulous political heavyweight.
- The leadership should focus on weeding out the dishonest among officers and **rewarding** those who have shown and proven themselves to be honest and professionally innovative.

Scandinavian social democracy

Context: In recent Sweden elections, the Social Democrats a party with origins in the neo-Nazi movement conceded defeat even as Moderates are expected to form the government with other right-wing parties offering support.

- This shows a **declining popularity of the Nordic model**, or "**democratic socialism**", as advocated by the new Green Movement and U.S. Senator Bernie Sanders, in the Nordic countries themselves.



Socialism and social democracy in Scandinavian:

- Terming the political-economic system in the Scandinavian countries, despite its strong welfarist basis and emphasis on collective bargaining as **“socialist” would be a misnomer.**
 - For one, the term **“socialism” is associated with the regimes of the erstwhile Communist bloc**, which had a heavy preponderance of the state in not just the ownership of the major means of production but also in political life with a one-party system drawing its ideological basis for rule on behalf of the working class.
- Following the **collapse of the Soviet Union**, new socialist regimes in recent years have sought to distance themselves from the one-party model in the so-called **“second world”**, instead focusing on retaining the functioning of market economies, while emphasising redistribution of wealth and a greater preponderance for the state in this process.
- The regimes in Latin America led by ruling parties in Venezuela, Bolivia and recently in Chile, can be termed **“democratic socialist”** — seeking to achieve socialist goals of redistribution and restructuring of formal democratic and liberal institutions in vastly unequal and elite driven systems.
- Political circles began to associate social democracy with Keynesianism, the Nordic model, the **social-liberal paradigm**, as well as welfare states in the late 20th century.

Defining features:

- Within socialism, **social democracy is a left-wing political, social, and economic theory** that promotes political and economic democracy. It is defined as a policy regime that supports economic and social interventions to advance social justice inside the framework of a liberal-democratic polity and a mixed economy that is capitalist-oriented.
 - A dedication to representative and participatory democracy
 - mechanisms for income redistribution
 - management of the economy in the public interest
 - social welfare policies

The ‘exceptional’ Scandinavian model

- In the Scandinavian countries, on the other hand, the systems are more **akin to typical “social democracies”** —
 - reliance on representative and participatory democratic institutions where separation of powers is ensured;
 - a comprehensive **social welfare schema** with emphasis on publicly provided social services and investment in child care, education, and research among others, that are funded by progressive taxation;
 - **presence of strong labour market institutions** with active labour unions and employer associations which allow for significant collective bargaining, wage negotiations and coordination besides an active role in governance and policy.
 - **All these countries also follow a capitalist model of development**, allowing for entrepreneurship and funding of welfare policies through a large degree of wage taxation in relation to corporate taxes.

Success of the Nordic countries:

- The commonalities in the Scandinavian countries — **Norway, Sweden, Denmark, Finland, and Iceland** — on many of these counts are measurable.

- For example, among countries in the **Organisation for Economic Cooperation and Development (OECD)** (featuring most high-income countries in the world), Iceland, Denmark, Sweden, Finland, and Norway have the highest proportion of the workforce belonging to trade unions.
- **Education is free in all the Nordic States**; health care is free in Denmark and Finland and partially free in Norway, Sweden, and Iceland ;
- workers get several benefits — from **unemployment insurance to old age pensions**, besides effective child care. Therefore, **labour participation rates** in these countries are among the highest in the world (even among women).
- The five Nordic nations rank in the **top 10 among OECD** countries in government **expenditure on health and education if calculated as percentage of GDP**.
- India can take a cue from the Nordic model since the State needs to find employment for its youth as well as provide welfare support to its vast section of vulnerable population.

Way Forward:

- One key reason for the thriving **social democratic model in the Nordic countries** has been their relatively **smaller and more homogenous populations** enabling focused governance.
- The **“corporatist” model** of involving interests of both capital and labour, mediated by the government at many levels, has allowed these countries to **transition from agrarian to industrial to post-industrial (in some cases) and knowledge/service economies relatively smoothly**.
- Thus, the **Nordic model of social democracy** offers **lessons to the developing world**, including **countries like India** despite the myriad complexities of diversities, differential internal development, and histories.

The Karnataka Hijab Case

Context: A two-judge Bench of the Supreme Court of India is presently hearing arguments on the correctness of a Karnataka High Court judgment that upheld the ban on the use of the hijab by students in Karnataka.

The Karnataka Hijab row:

- A dispute pertaining to **school uniforms erupted in Karnataka**, when some Muslim students of a college who wanted to **wear hijab to classes** were **denied entry** on the grounds that it was a **violation of the college’s uniform policy**.
- Several educational institutions Karnataka government’s compulsory uniform order and denied entry to Muslim girls wearing the hijab. This was **challenged in the Karnataka High Court (HC)**.

The Karnataka HC, while it upheld the restriction on Muslim women wearing a hijab in educational institutions, made three primary findings in its judgment:

- First, it held that the **use of a hijab is not essential to the practice of Islam**. Thus, the **right to freedom of religion was not violated**.
- Second, it ruled that there exists **no substantive right to freedom of expression or privacy inside a classroom** and, therefore, these rights were simply not at stake here. It held classrooms as **“qualified public spaces”** where individual rights must give way to the interests of **“general discipline and decorum”**.
- Third, it held that the ban did not stem directly out of the government’s order, which only called for a uniform dress code to be prescribed by the State or school management committees, and, hence, the **law did not discriminate, either directly or indirectly, against Muslim students**.

To decide on the correctness of this verdict, **the Supreme Court need not answer all the questions posed before it**. A reversal of any of the three findings made by the High Court ought to result in a nullification of the ban.

Law and religion:

- In theory, the issues emanating out of these submissions ought to be capable of easy resolution, through an application of ordinary doctrines of constitutional law.
- But, as transcripts from the hearings have shown us, every time an argument over religious freedom in India is made, it invariably mires itself in the court-crafted **doctrine of essential practice (ERP)**.

Essential religious practice (ERP) test is a doctrine evolved by the **supreme court (SC)** to **protect only such religious practices under fundamental rights**, which are essential and integral to religion. The doctrine of “**essentiality**” was invented by the SC in the **Shirur Mutt case** in 1954.

Constituent Assembly Debate:

The essential practices doctrine owes its existence to a **speech made by B.R. Ambedkar** in the Constituent Assembly: “Ambedkar was striving to distinguish the religious from the secular, by arguing that the state should be allowed to intervene in matters that are connected to religion but are not intrinsically religious”.

Judicial verdict in Shirur Mutt case:

- **Supreme Court (SC), in the Shirur Mutt case (1954)**, held that to determine what constituted an ‘**essential**’ aspect of religion, the Court ought to look towards the religion concerned, and to what its adherents believed was demanded by their faith.

The Sabarimala verdict on ERP:

- The essential practices test is not without alternatives. In his concurring opinion, in the case concerning the ban on entry of women into the Sabarimala temple, **Justice D.Y. Chandrachud** proposed one such doctrine: **a principle of anti-exclusion**.
- The **anti-exclusion principal postulates** that where a religious practice causes the exclusion of individuals in a manner which **impairs their dignity or hampers their access to basic goods, the freedom of religion must give way to the over-arching values of a liberal constitution**.

Way Forward:

But until such time as the **essential practices doctrine** is overruled by a Bench of more than seven judges, the Court is bound to apply its tenets. Perhaps that reassessment will happen when a **nine-judge Bench constituted in the review petitions** filed against the judgment in the **Sabarimala case passes judgment**.

For now, any Court hearing a matter touching upon a matter of faith including wearing hijab has the unenviable task of acting not merely as an expert on law but also as an expert on religion.

The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act

Context: The Delhi Commission for Women (DCW) submitted a report to the city government pointing out the sorry state of affairs in the implementation of the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act in the union territory.

The Law:

- **The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act was passed in 2013.**
- It defined sexual harassment, lay down the procedures for a complaint and inquiry, and the action to be taken.
- It broadened the Vishaka guidelines, which were already in place.
- The Vishaka guidelines were laid down by the Supreme Court in a judgment in 1997.

Genesis of Vishaka guidelines:

- This was in a case **filed by women’s rights groups**, one of which was Vishaka.
- They had filed a public interest litigation over the alleged gangrape of Bhanwari Devi, a social worker from Rajasthan.
- In 1992, she had prevented the marriage of a one-year-old girl, leading to the alleged gangrape in an act of revenge.

Guidelines and the law

- The Vishaka guidelines, which were legally binding, defined sexual harassment and imposed three key obligations on institutions —
 - **prohibition, prevention, and redress.**
- The Supreme Court directed that they should establish a Complaints Committee, which would look into matters of sexual harassment of women at the workplace.

The 2013 Act broadened these guidelines.

- It mandated that every employer must constitute an **Internal Complaints Committee (ICC)** at each office or branch with **10 or more employees**.
- It lay down procedures and defined various aspects of sexual harassment, including:
 - the aggrieved victim,
 - who could be a woman of any age whether employed or not,
 - who alleges to have been subjected to any act of sexual harassment.
- This meant that the rights of all women working or visiting any workplace, in any capacity, were protected under the Act.

Definition of sexual harassment:

- Sexual harassment includes any one or more of the following unwelcome acts or behaviour committed directly or by implication:
 - Physical contact and advances
 - A demand or request for sexual favours
 - Sexually coloured remarks
 - Showing pornography
 - Any other unwelcome physical, verbal, or non-verbal conduct of sexual nature.
- Additionally, the Act mentions five circumstances that amount to sexual harassment
 - implied or explicit promise of preferential treatment in her employment;
 - implied or explicit threat of detrimental treatment;
 - implied or explicit threat about her present or future employment status;
 - interference with her work or creating an offensive or hostile work environment;
 - humiliating treatment likely to affect her health or safety.

Procedure for complaint:

- Technically, it is not compulsory for the aggrieved victim to file a complaint for the ICC to act.
- The Act says that if **she cannot file a complaint**, any member of the **ICC shall render all reasonable assistance to her** to complain in writing.
- If the woman cannot complain because of **physical or mental incapacity** or **death**, her legal heir may do so.
- Under the Act, the complaint must be made **within three months** from the date of the incident.
- However, the ICC can extend **the time limit if it is satisfied that the circumstances** were such which prevented the woman from filing a complaint within the said period.
- The ICC may, before inquiry, and at the request of the aggrieved woman, take steps to settle the matter between her and the respondent through conciliation, provided that **“no monetary settlement shall be made as a basis of conciliation”**.
- The ICC may either forward the victim’s complaint to the police, or it can start an inquiry that has to be completed within 90 days.
- The ICC has powers similar to those of a civil court in respect of summoning and examining any person on oath, and requiring the discovery and production of documents.
- The identity of the woman, respondent, witness, any information on the inquiry, recommendation and action taken, the Act states, should not be made public.
- If the allegations of sexual harassment are proved, the ICC recommends that the employer act in accordance with the provisions of the service rules of the company.
- After the recommendations, the aggrieved woman or the respondent can appeal in court within 90 days
- Section 14 of the Act deals with punishment for false or malicious complaint and false evidence.

Death Penalty in India

Context: The Supreme Court's decision to frame uniform norms for trial courts in awarding the death sentence is a welcome intervention. This is a case that a three-judge bench led by Chief Justice of India U U Lalit had taken up on its own and has now referred to a larger Constitution bench of five judges.

What are the kinds of punishment awarded for Crimes in India?

- **Section 53 of the Indian Penal Code**, 1860 prescribes 5 kinds of punishments that can be awarded to criminals. This includes:
- **Death Penalty:** Under this punishment, a person is hanged till he dies. Death penalty is prescribed in certain IPC offences like **Waging war against the Government of India (Sec 121)**, **Murder (Sec 302)** etc.
 - Provision of Death Penalty is also there for some offences covered under certain other Acts like the **Army Act (1950)**, **BSF Act (1968)**, **Defense of India Act (1971)**, **NDPS Act (1985)**, **POCSO Act (2012, as amended in 2019)** etc. It is awarded in the 'rarest of rare cases'.
- **Life Imprisonment:** In its ordinary connotation imprisonment for life means imprisonment for the whole of the remaining life period of the convicted person's natural life.
- **Imprisonment (Simple or Rigorous):** Simple imprisonment is a punishment in which the offender is confined to jail only. He is not subjected to any hard labor. In rigorous imprisonment, a person is put to hard labor such as digging, cutting wood etc.
- **Forfeiture of Property:** The State seizes the property of a criminal. The property forfeited may be movable or immovable.
- **Fine:** The State can also impose a monetary punishment on a criminal.

What is the current status of Death Penalties awarded in India?

- The number of prisoners on death row at the end of 2021 stood at 488, the highest in 17 years, according to the Death Penalty in India Report.
 - According to the report, while **trial courts** imposed a **total of 144 death sentences in 2021**, **High Courts decided only 39 matters** in the same period.
 - The Supreme Court, despite listing death penalty cases on priority in September last year, decided only 6 cases in 2021 compared to 11 in 2020 and 28 in 2019.

What is the Judicial view on Death Penalty?

Ediga Anamma v. the State of Andhra Pradesh, (1974): The Supreme Court (SC) laid down the principle that life imprisonment for the offence of murder is the rule and capital punishment is the exception in certain cases.

Bachan Singh v. the State of Punjab, (1980): The SC stated that the death penalty should be awarded only in '**rarest of rare**' cases. A case becomes rarest of rare when there is extreme culpability of the offender in committing the offence of murder; and an extreme cause of the offender in committing the offence of murder.

- The **Supreme Court** stated that it should be issued only when the alternative of a life sentence is '**unquestionably foreclosed**'. The death penalty should be awarded after seeing the aggravating and mitigating factors and balance of the same.

What are arguments in favour of Death Penalty?

Maintaining Deterrence: The foremost argument given in support is the level of deterrence maintained in society by awarding death penalty. Many people believe that a person may restrain himself from committing a heinous crime like murder if death penalty is awarded for it.

National Security: Some acts like waging war against the State, terrorism etc. erodes the sanctity of our National Security framework. Such acts threaten the very existence of the country and its people. For instance, **Ajmal Kasab** was awarded the death sentence for carrying out **26/11 Mumbai attacks**.

Acts that shake the collective conscience: Supporters of Death Penalty says that there are some acts which shakes the collective conscience of society and deserves nothing except death penalty.

- **For instance, The Vinay Sharma v. the Union of India (2020) case**, also famously known as the **Nirbhaya gang-rape case**, had shocked the conscience of the whole country. One of the accused committed suicide in jail and one of the accused was a juvenile so he was not sentenced to death.
- But the other four accused were sentenced to death and were also hanged in the year 2020.

Safety of Citizens: Proponents of capital punishment argue that some criminals commit most terrible of crimes and are beyond redemption (e.g., some accused of multiple rape cases). They show no remorse or repentance. There is no change of reform and should be awarded death sentence for safety of citizens.

What are the arguments in favour of abolition of Death Penalty?

- **High Degree of Subjectivity:** There is a high degree of subjectivity in awarding death sentences as the judges find it difficult to balance the mitigating and aggravating factors.
 - According to the **Death Penalty India Report 2016 (DPIR)**, approximately 75% of all convicts sentenced to death in India are from socio-economically underprivileged categories, such as Dalits, OBCs, and religious minorities.
- **Mental Stress:** In many cases the convicts have to undergo a huge term of imprisonment before being finally executed.
 - The findings of **Project 39A's report 'Deathworthy'** shows that the segregated, alienated, and stigmatized experiences of being on a death row for a longer time result in mental illness.
- **Irreversible in Nature:** Courts often give compensation to individuals who are wrongly convicted and have spent considerable time in jail due to an error by the State. However, if a person is wrongly hanged, then no amount of compensation can bring back the person and mitigate the error.
- **Inhumane:** Human rights and dignity are incompatible with the death penalty. The death sentence is a violation of the right to life, which is the most fundamental of all human rights.

Global Precedent – No correlation with low crime rates:

- **Scandinavian countries like Norway, Sweden and Finland** have one of the lowest crime rates in the world without death penalty. They focus on reforming the criminal rather than deterring him with stricter and harsh punishments.
 - More than 100 countries have already abolished death sentence for all offences. This includes most European nations, Australia, New Zealand etc.

What lies ahead?

- The Supreme Court can step in and commute **Balwant Singh's death sentence** on account of undue delay in disposal of the mercy petition that has violated his right to life under **Article 21 of the Indian Constitution**.
- The SC should release updated guidelines on how to **balance the aggravating and mitigating factors in cases**.
- The Courts can evolve **innovative ways for giving stricter punishment** in place of death penalty. For instance, giving minimum **25-30 years rigorous imprisonment** that can't be reduced or reviewed.
- The focus should be on **ensuring certainty of punishment rather than quantum of punishment** that will act as a better deterrent for criminals.
- The Union Government should also act **swiftly on mercy petitions** based on merits and not on political advantage/disadvantage it may get from the petition.

Conclusion:

The **Law Commission in its 262nd report** proposed that the **death penalty should be abolished for all crimes excluding terrorism-related offences and war**. The experience of the Scandinavian countries also supports this view. However, till the time it happens, there should be proper implementation of the Bachan Singh Judgment by the Indian Courts.

Rules for Identifying Criminals

Context: Recently, the **Ministry of Home Affairs (MHA)** notified the rules governing The **Criminal Procedure (Identification) Act, 2022**. The legislation would enable police and central investigating agencies to collect, store and analyse physical and biological samples including retina and iris scans of arrested persons.

About Criminal Procedure (Identification) Act, 2022:

- The Act seeks to **repeal the Identification of Prisoners Act, 1920**, which is over **100-years-old**.
 - The old Act's scope was limited to capturing of finger impression, foot-print impressions and photographs of convicted prisoners and certain category of arrested and non-convicted persons on the orders of a Magistrate.
- The Statement of Objects and Reasons of the bill when it was introduced in Parliament said that **new "measurement" techniques** being used in advanced countries are giving credible and reliable results and are recognised world over.
- It said that the **1920 Act does not provide for taking these body measurements as many of the techniques and technologies had not been developed then**.
 - The Act empowers a **Magistrate to direct any person to give measurements, which till now was reserved for convicts and those involved in heinous crimes**.
 - It also enables the police up to the rank of a Head Constable to take measurements of any person who resists or refuses to give measurements.

As per the rules, "measurements" include: finger-impressions, palm-print, footprint, photographs, iris and retina scan, physical, biological samples and their analysis, behavioural attributes including signatures, handwriting or any other examination referred to in Section 53 or 53A of CrPC, 1973.

Concerns about the misuse of the Act:

- When the Bill was debated in Parliament in March this year, the Opposition members termed it **"unconstitutional" and an attack on privacy as it allowed the record of samples of even political detainees**.
- However, the rules notified in September state that samples of those **detained under preventive Sections such as 107, 108, 109, 110, 144, 145 and 151 of the CrPC shall not be taken unless such person is charged or arrested** in connection with any other offence punishable under any other law.
- It can also be taken if a **person has been ordered to give security for his good behaviour for maintaining peace under Section 117** of the said Code for a proceeding under the said Sections.
- The **rules do not mention the procedure** to be adopted for convicted persons.

Repository of the measurement data:

- The **National Crime Records Bureau (NCRB) under MHA** will be the one-stop agency for storing and preserving the data of arrested persons.
- The **State governments can also store the data**, but it shall provide compatible application programming interfaces for sharing the measurements or record of measurements with the NCRB.
- The rules state that the **NCRB will issue Standard Operating Procedure (SOP)** for collection of measurements which would include specifications of the equipment or devices to be used, specifications and the digital and physical format of the measurements etc.
- The rules said that in case any measurement is collected in physical form or in a non-standard digital format, it shall be converted into standard digital format and thereafter uploaded in the database as per the SOP.
- Only authorised users could upload the measurements in the central database in an encrypted format.

Provisions for destruction of records in case a suspect is acquitted:

- **It is yet to be specified by the NCRB.** The rules state that any request for destruction of records shall be made to the Nodal Officer who is to be nominated by the respective State Government.
- The nodal officer will recommend the destruction after verifying that such record of measurements is not linked with any other criminal cases.

Facial recognition technology (FRT):

- It is a **biometric technology** that uses distinctive features of the **face to identify and distinguish an individual**.
- In the **Automated Facial Recognition System (AFRS)**, the large database (containing photos and videos of peoples' faces) is used to match and identify the person.
- Image of an unidentified person, taken from CCTV footage, is compared to the existing database using **Artificial Intelligence (AI) technology, for pattern-finding and matching**.
- Though the **Criminal Procedure Identification Rules (CPIR), 2022** does not explicitly mention FRT or AFRS, some concerns have been raised over its potential use by police and other investigative agencies. Already Delhi Police is using FRT.

Conclusion: Use of technology for better identification of criminals and record keeping must be balanced with the citizens' right to privacy, which is now recognised as a fundamental right under Indian constitution.



ECONOMY



Feeding Humanity, Saving the Planet

Context: There is increasing awareness that humans are over-exploiting this planet's natural resource endowment. This may threaten the very existence of humanity.

Consequences of over exploitation of natural resources:

- **Degradation of lands**, especially the topsoil that is crucial for providing us **with food, animal feed and fibre**.
- **Groundwater is depleting** and its quality is becoming poorer with the increasing use of **chemical fertilisers and other industrial waste**.
- **The air pollution** at an alarming rate in certain parts of the world, especially in India, where at times it is difficult to even breathe in a city like **Delhi when stubble burning peaks in farmers' fields in Punjab and Haryana**.

What is the real cause behind such a rapid deterioration in nature's wealth:

- There is **imbalance between people, our planet, and the political economy of policies**.
- What we know is that roughly it took **more than 2,00,000 years for homo sapiens** to evolve into the current form of mankind. **In 1804**, for the first time in history, the **human population touched one billion**.
- In next billion was added in **123 years** with the count **touching two billion by 1927**. Several major breakthroughs in medical science ensured that the next billion was added in just 33 years by 1960.
- The next billion was added in **just 14 years** with the population **reaching four billion in 1974**. The **next billion took just 13 years (five billion in 1987)**, 11 years thereafter (six billion in 1998), 12 years thereon (**seven billion in 2010**), and another 12 years to touch eight billion in 2022.

This **explosive growth of population**, with higher and higher aspirations, has created a huge **imbalance between the demands of people and the capacity of this planet** to supply them in a **sustainable manner**.

Can this planet provide food for all through natural farming without the use of any chemical fertilisers, pesticides, modern high yielding varieties of seeds etc.?

- Many governments, religious organisations, and some NGOs and individuals believe that there is no option but to go back to nature and practice organic/natural farming
- **Sri Lanka**, for example, wanted to get rid of chemical fertilizers.
- **Even in India**, we have some states (**like Sikkim**) **declared as organic states**, state like **Andhra Pradesh** is also scaling up natural farming and many others states are attempting to do so.
- **SAVE SOIL: A MOVEMENT THAT BEGAN 24 YEARS AGO:** For three decades now, **Sadhguru from ISHA Foundation** has been continuously bringing the importance of soil and has said repeatedly at several international platforms: **"Soil is our life, our very body. And if we forsake soil, in many ways, we forsake the planet."**
- These are practice are in **growing phase with the expectation** that they are safe for society, augment their incomes and ensure food security for the masses through **ample availability of food at affordable prices**.

However, certain conducted studies which shows certain negative aspect of it such as

- Studies conducted by **ICAR in India** show that with the **adoption of natural farming yields go down for major staple crops** like wheat and rice by as much as 30 to 50 per cent.
- Given that India is going to be the **most populous country on the planet in 2023**, we need to take policy decisions with better and more scientific evidence if we want to **avoid a Sri Lanka-like fiasco**.

Use of Modern-technological tools to enhance the crop production:

- AIML (Artificial Intelligence and Machine Learning), GIS (Geographical Information System), which can use enormous data to bring about precision in farming.
- Use of sensors, drones, satellites, and LEOs (low earth orbits), space technologies, cloud computing, are all bursting out to provide the basis for a revolutionary epoch.
- Drips, hydroponics, and aeroponics, vertical farming, are all available for mankind to get much more with very little exploitation of the planet's natural resource endowment.

Government's initiative for sustainable agriculture:

- **Mission Organic Value Chain Development for North Eastern Regions (MOVCDNER):**
 - It is a **Central Sector Scheme**, a sub-mission under **National Mission for Sustainable Agriculture (NMSA)**, in North-Eastern states
 - which aims to **development of certified organic production** in a value chain mode to link growers with consumers and to support the development of entire value chain starting from inputs, seeds, certification, to the creation of facilities for collection, aggregation, processing, marketing, and brand building initiative.
- **Paramparagat Krishi Vikas Yojana (PKVY) :**
 - It is an elaborated component of Soil Health Management (SHM) of major project under **National Mission of Sustainable Agriculture (NMSA)** which promotes organic farming through adoption of organic village by cluster approach and **Participatory Guarantee System (PGS) certification**.
- **Rashtriya Krishi Vikas Yojana:**
 - The scheme has come a long way since its inception in 2007 and has been implemented across **two plan periods (11th and 12th)**. The scheme incentivizes States to **increase public investment in Agriculture & allied sectors**.

Therefore, there is need to address certain areas of concerns for sustainable farming

- **Precise and efficient use of Subsidy:** In India, specifically, we have the culture of free power, free water, almost 80 to 90 per cent subsidy on urea, and so on. These subsidy policies may have been good in the 1960s or the 1970s when the country was hugely food deficit. But they are continuing and even increasing. So, **effective and target subsidy should be provided with 'sunset' timing**.

Thus, **Precision farming** needs to be promoted to get more output with **less exploitation of natural resources** while considering that natural resources are not exploited. This will help in sustainable food grain production which can feed the planet.

Emergency Credit Line Guarantee Scheme

Context: The scheme was launched as a part of the **Atma Nirbhar Bharat package** for the **Micro, Small, and Medium Enterprises (MSME)** borrowers to mitigate the distress caused by the COVID-19 pandemic.

- The scheme was initially announced in **May 2020** and then over a period of time, the Finance Ministry has expanded the scope of the ECLGS.
- Recently (May 2021), **ECLGS 4.0** has been introduced which **provides 100 percent guarantee cover to loans up to Rs.2 crore** to hospitals/nursing homes/clinics/medical colleges for setting up on-site oxygen generation plants, **interest rate capped at 7.5%**.

Emergency Credit Line Guarantee Scheme – Key Points

- The Scheme allowed additional funding of up to Rs.3 lakh crores to different sectors, especially **Micro, Small, and Medium Enterprises (MSME) and MUDRA borrowers**.
- Under the ECLGS, **all loans sanctioned under the Guaranteed Emergency Credit Line (GECL) facility** will be provided with additional credit. However, there are two specifications:
 - The scheme would be applicable for loans sanctioned from the date of announcement of the scheme to October 31, 2020, [Now September 3, 2021] OR
 - Guarantees for an amount of Rs.3 lakh crore are issued (whichever happens first) Disbursement is permitted up to December 31, 2021.

Major objectives of ECLGS:

- As per this scheme, **100% guarantee coverage** is to be provided by **National Credit Guarantee Trustee Company Limited (NCGTC)** to the Member Lending Institutions (MLI), Banks, Financial Institutions, and Non-Banking Financial Companies (NBFC)
- The Scheme aims at **mitigating the economic distress faced by MSMEs** by providing them additional funding in the form of a fully guaranteed emergency credit line.
- It shall also provide **credit to the sector at a low cost**, thereby enabling the small sector businesses to meet their operational liabilities and restart their manufacturing and work

Who is eligible under the ECLG Scheme?

As per the latest eligibility criteria with the launch of the expanded Emergency Credit Line Guarantee Scheme, the following criteria had to be met to be applicable for a loan under the scheme:

- Enterprises with a turnover of up to Rs. 250 crores (FY 2019-20) with outstanding loans up to Rs. 50 crores, as of February 29, 2020
- GECL credit provided will be up to 20% of the borrower's total outstanding credit as of February 29, 2020.
- The **maximum amount of loan** that can be availed under the scheme is Rs. 5 crores.

Tenure & Interest Rates under ECLGS

- The loan tenure is for 4 years and the moratorium period of 1 year on the principal amount is also applicable [Now the loan tenure is 5 years]
- Interest rates under ECLGS have also been capped:
 - 25% for Banks and Financial Institutions
 - 14% for Non-Banking Financial Companies
- The National Credit Guarantee Trustee Company Ltd (NCGTC) is not allowed to charge any Guarantee Fee from the Member Lending Institutions that are included under this scheme.

ECLGS 4.0 – Expansion of the Scheme

On 31st May 2021, the Indian government notified the expansion of the ECLGS. Under the version of ECLGS 4.0:

- 100 percent guarantee cover** is being provided to hospitals/nursing homes/clinics/medical colleges for loans of up to Rs 2 crores at an interest rate of 7.5 percent. It is given for setting up on-site oxygen generation plants.
- The eligible borrowers who earlier had a **loan tenure of four years** can now avail of a loan tenure of five years.
- Additional ECLGS assistance of up to **10% of the outstanding** as of February 29, 2020, to borrowers covered under **ECLGS 1**.
- The **500 crore** loan ceiling under **ECLGS 3.0** is being discontinued.
- The maximum additional ECLGS assistance to each borrower is being limited to 40% or Rs.200 crore, whichever is lower.
- Civil aviation sector is an eligible borrower under ECLGS 3.0.**

About ECLGS 2.0

- The scheme was announced in November 2020 as a part of the **Atma Nirbhar Bharat 3.0 package**.
- The Emergency Credit Line Guarantee Scheme has been expanded to **27 new sectors, including the health sector**.
- These 27 sectors have been identified by **the Kamath Committee** for one time debt restructuring. Power, construction, textiles, real estate, tourism are few among the many sectors identified.
- Individual beneficiaries for both, professional and self-employed people have also been included in the scheme
- The tenor has been upgraded to 5 years with a 1-year moratorium on repayment of principal.

About National Credit Guarantee Trustee Company Limited

- NCGTC or the National Credit Guarantee Trustee Company Limited was registered under the Companies Act, 1956 in 2014.
- It is a **wholly-owned company of the Government of India**.
- It was established by the **Department of Financial Services, Ministry of Finance**.
- The main role of the Organisation is to design credit guarantee programs, to share the risk of lending among the lenders, and facilitate financial access to a prospective borrower

Conclusively, to **revise the economy** of the country which faced **major disturbances due to the COVID lockdown**, the Government of India decided to take charge of making the country self-dependent. And, the **Emergency Credit Line Guarantee Scheme** is one of those initiatives.

Windfall Tax

In News: The Central government on July 1, introduced a windfall profit tax of ₹23,250 per tonne **on domestic crude oil production**, which has fluctuating rates.

- Finance Minister defended the windfall tax saying that it was done **after full consultation with the industry** and explained the introduction of the windfall tax as a **way to rein in the “phenomenal profits” made by some oil refiners** who chose to **export** fuel to reap the benefits of skyrocketing global prices while **affecting domestic supplies**
- It also imposed an additional excise levy on diesel, petrol and air turbine fuel (ATF) exports.

India has been importing discounted Russian oil – the windfall tax was targeted mainly at Reliance Industries Ltd and Russian oil major Rosneft-backed Nayara Energy

About Windfall Tax:

- The U.S. Congressional Research Service (CRS) defines a windfall as an **“unearned, unanticipated gain in income through no additional effort or expense”**.
- They are called so as the **profits** are derived from an **external or unprecedented event** or from something the firm actively did not participate in — for instance, the energy price-rise as a result of the Russia-Ukraine conflict.
- Typically, it's levied as a one-off tax **retrospectively** over and above the normal rates of tax.
- In oil markets, price fluctuation leads to volatile or erratic profits for the industry. Hence, tax is levied to **redistribute** unexpected gains when high prices benefit producers at the expense of consumers.
- It can be used to fund **social welfare** schemes, and as a supplementary revenue stream for the government.

Need for Windfall Tax

- To **narrow** the country's **widened trade deficit** on account of rising prices of oil, gas, and coal
- Rise in prices due to **pandemic recovery and supply issues** resulting from the **Russia-Ukraine conflict** and consequent increase in energy demands.
- The rising prices imply huge profits for energy companies while resulting in hefty gas and electricity bills for households – **widening income inequality**.
- The “grotesque greed” of big oil and gas companies eg. the largest energy companies in the first quarter of the year made combined profits of close to \$100 billion.

Challenges

- **Adverse impact on investments:** Introducing a temporary windfall profit tax reduces future investment because prospective investors will internalise the likelihood of potential taxes when making investment decisions and avoid **uncertainty** on account of retrospective nature of tax and influence of unexpected events and surprises.
- Such taxes are **populist and politically opportune in the short term**.
- The IMF said taxes in response to price surges may **suffer from design problems**—given their expedient and political nature.
- **Difficulty in constituting true windfall profits;** their determination and level of normalisation of profit. A CRS report, for instance, argues that if rapid increases in prices lead to higher profits, in one sense it can be called true windfalls as they are unforeseeable but on the other hand, companies may argue that it is the profit they earned as a **reward for risk-taking** to provide the end user with the petroleum product.

- Issue of determining **who** should be taxed — only the big companies responsible for the bulk of high-priced sales or smaller companies as well or whether producers with revenues or profits below a certain threshold should be exempt

IMF Guidelines on the matter

- Introduce a **permanent tax** on windfall profits from fossil fuel extraction.
- Use **caution in temporary taxes** on windfall profits because these tend to increase investor risk, may be more distortionary (especially if poorly designed or timed), and do not provide revenue benefits above those of a permanent tax on economic rents.
- The tax should be imposed on a share of **economic rents** (meaning excess profits).

Economic rents generally arise from fossil fuel extraction as a result of the fixed supply and diverse. **Rent-targeting taxes raise revenue without reducing investment or increasing inflation.**

- Encourage the **switch to renewable energy**, given the need for decarbonization in energy generation. Transitioning to renewable energy improves **energy security**.
- **Design principles:** Tax should apply to a **clear measure of excess profit**; tax should **not apply to revenue** as this can be inflationary and reduce investment. The tax should allow for carry forward of losses to ensure symmetrical treatment

Boosting Patent Ecosystem

In news: The recent **report of the Economic Advisory Council to the Prime Minister (EAC- PM)**, 'Why India Needs to Urgently Invest in its Patent Ecosystem?', highlights the **significance of a robust patent system for a knowledge economy and for the promotion of technological innovations.**

Important provisions of the Patents Act:

- **Section 9(1)** – those applications accompanied by provisional specifications be supported by complete specifications within one year.
- **Section 21(1)** – re-file documents if the patent examiner finds them not meeting the requirements such as when applicants are not confident about their applications passing scrutiny and, therefore, do not pursue their applications or in case of innovations with short-life spans, that the

Challenges

- **Long pendency of processing** patent applications discourages applicants from following up on their applications.
- Increase in number of **abandoned patent applications** on account of not meeting the requirements under Sections 9(1) and 21(1) of the Patents Act
- Grew by almost 350%
- **Perverse incentives** which encourage the filing of patent applications even when the innovator knows that their claims will not pass scrutiny.
- **India's declining score** for industry-academia collaboration indicator in **The Global Innovation Index (GII)** from 47.8 in 2015 to 42.7 in 2021, consequently, India's ranking in this indicator in the GI declined from 48 to 65
- **Industry-Academia Collaboration** has been **limited** to niche research areas that have low commercial significance.
- **Innovations** from India have been **scarce** – a phenomenon prevalent across most sectors in India.

Solutions

- **Increasing efficiency** of processing patent applications will certainly improve the patent ecosystem in the country.
- **Investigate** the patent ecosystem more closely to connect the dots so that appropriate measures are adopted to improve the patent ecosystem, keeping in view the national innovation ecosystem.
- **Eliminating perverse incentives**

Way forward

- Patent system is a critical aspect of the national innovation ecosystem and investing in the patent ecosystem will help in strengthening the innovation capability of India
- Higher education sector is rising in prominence in the R&D spending and patenting landscape. The share of this sector in the gross domestic expenditure on R&D (GERD) has increased from 5% in 2013 to 7% in 2018, as per UNESCO's data.
- Focus should be on increasing collaboration between industry and academia

Economic Advisory Council to the Prime Minister (EAC-PM):

- It is an independent non-constitutional, non-permanent body constituted to give advice on economic and related issues to the Government of India, specifically to the Prime Minister.
- **Composition:** Dr. Bibek Debroy (Chairman) and 6 part-time members.
- **Objective:** Analysing any issue, economic or otherwise, referred to it by the Prime Minister and advising him thereon, addressing issues of macroeconomic importance and presenting views thereon to the Prime Minister. These could be **either suo-motu or on reference** from the Prime Minister or anyone else.

The Global Innovation Index (GII)

- Launched in **2007 by INSEAD, WIPO and Cornell University**
- Goal: to find and determine metrics and methods that could capture a picture of innovation in society that is as complete as possible.
- **India's ranking in 2022 – 46th out of 130 countries.**

National Intellectual Property Rights Policy 2016

- It is a **vision document** that encompasses and brings to a **single platform** all IPRs.
- It views IPRs holistically, considering all **inter-linkages** and thus aims to create and exploit **synergies** between all forms of intellectual property (IP), concerned statutes and agencies.
- It sets in place an **institutional mechanism** for implementation, monitoring and review. It aims to incorporate and adapt **global best practices** to the Indian scenario.

Rupee Depreciation

Context: There has been a consistent deterioration of Indian Rupee's (INR) exchange rate with respect to the US Dollar (\$) over the last few month. It breached the psychologically significant exchange rate level. The fall in Rupee has been going on since the war in Ukraine began, and crude oil prices started going up.

What is Depreciation?

- Currency depreciation is a fall in the value of a currency in a floating exchange rate system.
- For example: USD 1 used to equal to Rs. 70, now USD 1 is equal to Rs. 77, implying that the rupee has depreciated relative to the dollar i.e., it takes more rupees to purchase a dollar.

Impact of Depreciation of Indian Rupee: Depreciation in rupee is a double-edged sword for the Reserve Bank of India.

Positive:

- Weaker rupee should theoretically give a boost to India's exports, but in an environment of uncertainty and weak global demand, a fall in the external value of rupee may not translate into higher exports.

Negative:

- It poses risk of imported inflation, and may make it difficult for the central bank to maintain interest rates at a record low for longer.
- India meets more than two-thirds of its domestic oil requirements through imports.

- India is also one of the top importers of edible oils. A weaker currency will further

What determines the rupee's value?

- The value of any currency is determined by demand for the currency as well as its supply.
- When the supply of a currency increases, its value drops.
- In the wider economy, central banks determine the supply of currencies, while the demand for currencies depends on the amount of goods and services produced in the economy.
- In the forex market, the supply of rupee is determined by the demand for imports and various foreign assets. So, if there is high demand to import oil, it can lead to an increase in the supply of rupees in the forex market and cause the rupee's value to drop.
- The demand for rupees in the forex market, on the other hand, depends on foreign demand for Indian exports and other domestic assets.
- When there is great enthusiasm among foreign investors to invest in India, it can lead to an increase in the supply of dollars in the forex market which in turn causes the rupee's value to rise against the dollar.

What is causing the rupee to lose value against the dollar?

- Since March this year, **the U.S. Federal Reserve** has been raising its benchmark interest rate causing investors seeking higher returns to pull capital away from emerging markets such as India and back into the U.S.
- This, in turn, has put pressure on emerging market currencies which have depreciated significantly against the U.S. dollar so far this year.
- Some analysts believe that the RBI's surprise decision to raise rates in May could have simply been to defend the rupee by preventing any rapid outflow of capital from India.
- India's current account deficit, which measures the gap between the value of imports and exports of goods and services, is expected to hit a 10 year high of 3.3% of gross domestic product in the current financial year.
- Foreign investors are unlikely to plough capital into India when investment yields are rising in the U.S.

What lies ahead?

- It is neither wise nor possible for the RBI to prevent the Rupee from falling indefinitely. Defending the Rupee will result in India exhausting its forex reserves over time because global investors have much bigger financial clout.
 - Most analysts believe that the better strategy is to let the Rupee depreciate and act as a natural shock absorber to the adverse terms of trade. Thus, **RBI should focus on containing inflation which is its legal mandate.**
- The Government should contain its borrowings. Higher borrowings (fiscal deficit) by the Government consume domestic savings. Hence, the Industrial and other sectors of economy are forced to borrow from abroad.
- Over the long run, the Rupee is likely to continue to depreciate against the Dollar given the significant differences in long-run inflation between India and the U.S.
- The U.S. Federal Reserve has raised rates to tackle historically high inflation in the US that hit a 41-year high of 8.6%.
 - This will induce other countries and emerging markets in particular to raise their own interest rates to avoid disruptive capital outflows and to protect their currencies.
- As interest rates rise across the globe, the threat of a global recession also rises as economies readjust to tighter monetary conditions.

Conclusion:

- Analysts believe that, over the long run, the rupee is likely to continue to depreciate against the dollar given the significant differences in long run inflation between India and the U.S.
- The exchange rate has fallen to its historical low of 80, however Indian Rupee has shown a better performance in comparison to currencies of emerging economies.
- The inflation divides between the U.S and India will continue to further depreciate the Rupee. Nonetheless, with proactive fiscal and monetary measures, India can stabilize its currency value.

Dharamshala Declaration

Context: Recently a gathering of State Tourism Ministers to discuss on modes and mechanisms to develop tourism in India, came up with 'The Dharamshala Declaration' (2022).

It draws inspiration from central government's 'Whole of Government' approach, which enables the breaking down of silos and encouraging synergies across various government corridors.

- On the occasion of **World Tourism Day (September 27)**, Dharamshala Declaration aims to recognise India's role in contributing towards global tourism as well as focusing on recovery by also promoting domestic tourism — which has been overlooked for long.
- In the declaration, the Tourism Ministry has come up with a strategy and action plan to encourage more Indians to travel domestically and explore India's natural, cultural, and spiritual beauty while simultaneously reaching the goal of an '**Ek Bharat Shrestha Bharat**' (interaction and mutual understanding).
 - The '**Ek Bharat Shrestha Bharat**' scheme was launched to celebrate the **cultural vibrancy of India** while establishing a strong mechanism to inculcate nationalism and cultural awareness among the citizens of our nation.
- In parallel, the Ministry has also been working with the **Ministry of External Affairs** to identify 20 Indian missions abroad with the highest tourist footfalls to India and build country-specific strategies to attract foreign tourists.

Rethinking and reimagining tourism: Tourism has been one of the sectors severely affected by COVID-19. The Government of India's **Emergency Credit Line Guarantee Scheme (ECLGS)** was recently enhanced to **₹5 lakh crore to benefit enterprises in hospitality and related sectors** such as hotels and restaurants, marriage halls, travel agents, tour operators, adventure, and heritage facilities.

- **The Ministry of Tourism**, after wide-ranging consultations, has prepared a draft **National Tourism Policy 2022**, which aims at improving the framework conditions for tourism development in the country, supporting tourism industries, strengthening tourism support functions, and developing tourism sub-sectors.
- The guiding principles include promoting **sustainable, responsible, and inclusive tourism** in line with our civilisational ethos.
 - **From Gautama to Gandhi**, India has always spoken about the inherent need to live harmoniously with nature and within our means. **The National Green Tourism Mission** aims at institutionalising this approach.
- **The National Tourism policy** also aims to give impetus to **digitalisation, innovation and technology through the National Digital Tourism Mission and skilling through the Tourism and Hospitality Sector Skill Mission**.
- The policy also gives a special impetus to private sector participation through **public-private-partnerships (PPP)**.
 - Various other schemes involving PPP mode development will also compliment tourism sector, like the **National Investment Pipeline (NIP) and the National Monetisation Pipeline (NMP)**.

Important features of draft National Tourism Policy 2022:

- To promote investment in the tourism sector, industry status is proposed to be granted to the sector, along with formally granting infrastructure status to hotels.
- It identifies 5 key areas to be given significant focus in the next 10 years — green tourism, digital tourism, destination management, skilling the hospitality sector and supporting tourism-related to MSMEs.
- Relief Measures and Taxation Breaks for the contact-sensitive industry, which has been the worst sufferer over the last two years of the COVID-19 pandemic,
- Other framework conditions to help the sector, especially in the wake of the pandemic. The overall mission and vision are being laid out to improve the experience of tourists, foreign as well as local.

Potential during the G20 presidency:

- The country has an opportunity to position itself as a major tourism destination during **India's presidency of the G20 (2023)**.
 - India welcomes delegates from the **20 countries/European Union**, including personnel from the central banks and finance ministries ranging from anti-corruption and agriculture to health, culture and tourism and foreign ministers, and other ministerial meetings.

- Even as the final list of cities is being finalised based on a set of transparent criteria such as **conference infrastructure, accommodation availability, rankings in Swachh Bharat** and other parameters, close to 35 cities with this potential have already been identified.
- During this time, the plan is to ensure due rigour, dedication and showcase the country's cultural richness while welcoming the world to India.
 - The Ministry of Tourism also plans to work with other Ministries to bring in necessary interventions such as visa reforms, ease of travel, traveller-friendly and improved immigration facilities at airports.

Way forward:

- Over the past few months, all the major tourism indices such as domestic air passenger traffic, hotel occupancy and tourist footfalls have shown signs of recovery and are going back to pre-pandemic levels.
 - By mid-2024, we would be at pre-pandemic levels, with **India achieving \$150 billion as GDP contribution from tourism and \$30 billion in foreign exchange earnings** with 15 million foreign tourist arrivals.
- By 2030, India is estimated to grow at 7%-9% compounded annual growth rate and we expect the enabling policy framework to bring in **\$250 billion in GDP contribution from tourism**, 140 million jobs in the tourism sector.
- India's age-old dictum of '**Atithi Devo Bhava**' will come to the fore as it welcomes tourists across the world under a new age tourism policy.

Web 3.0

Context: As things are, investors from across the world have invested at least \$88 billion into almost 16,000 companies working with web3. Of these, 79 are now unicorns of which at least three are headquartered in India.

What do we need to know of versions in use?

- The web, also known as the World Wide Web, is the foundational layer for how the internet is used, providing website and application services.
- **Web 1.0** is the world wide web or the internet that was invented in 1989. It became popular from 1993. It was a static information provider where people read websites but rarely interacted with them.
- **Web 2.0** (the current version) is an interactive and social web enabling collaboration between users.
 - The differentiating characteristic of Web 2.0 compared to Web1.0 is that **users can create content**. They can interact and contribute in the form of comments, registering likes, sharing and uploading their photos or videos and perform other such activities.
 - 2004 witnessed two notable developments that accelerated the development and adoption of Web 2.0: Google's initial public offering (IPO) and the creation of Facebook (now Meta).
- Innovations such as smartphones, mobile internet access, and social networks have driven the exponential growth of Web 2.0.
- The phenomenal revenue growth of Web 2.0 has made many of the Web 2.0-centric companies—such as Apple, Amazon, Google, Meta (formerly Facebook), and Netflix—among the world's biggest companies by market capitalization.
- Web 3.0 or Web3 is the third generation of the World Wide Web. Currently a work in progress, it is a vision of a **decentralized and open Web with greater utility** for its users.
- It took over 10 years to transition from the original web, Web 1.0, to Web 2.0, and it is expected to take just as long, if not longer, to fully implement and reshape the web with Web 3.0.

What were some of the concerns of Web 2.0?

- In Web 2.0, most of the data in the internet and the internet traffic are **owned or handled by very few large companies**.
- This has created issues related to **data privacy, data security and abuse of such data**.
- There is a sense of disappointment that the original purpose of the internet has been distorted. It is in this context that the buzz around Web3 is significant.

What is Web 3.0?

- As per the Web3 foundation, Web3 will deliver "decentralized and fair internet where users control their own data".

- Currently if a seller has to make a business to the buyer, both the buyer and seller need to be registered on a “shop” or “platform” like Amazon or any such e-commerce portal.
- Thus, Web3 enables peer to peer (seller to buyer) transaction by eliminating the role of the intermediary. This concept can be extended to other transactions also.
- The spirit of Web3 is **Decentralized Autonomous Organization (DAO)** which is that all the business rules and governing rules in any transaction are transparently available for anyone to see and software will be written conforming to these rules.

What are the benefits of Web 3.0?

- **Open Network:** Web 3.0 is the open network; all applications and programs are developed using open-source software.
- **Removes Middlemen:** Web 3 technology can also eliminate middlemen, allowing sellers and customers to interact directly.
- **User Control of data:** Core features of Web 3.0, such as decentralization and permissionless systems, will also give users much greater control over their personal data.
- **Decentralised Monetization:** In centralised content management, user-generated content typically belongs to the platform it is published but Web 3.0 can empower creators by giving them a better **opportunity to monetize**.

What are the concerns of Web 3.0?

- **Needs comprehensive Overhaul of Internet Architecture:** From a technology perspective, Web3 will require deviation from the current architecture where there is a front-end, middle layer and back-end.
- **Regulatory Challenges:** It is claimed that decentralisation can bring new types of cyber-crime in the picture. Cybercrime, hate speech, and misinformation are already difficult to police and will become even more so in a decentralized structure because of the lack of central control.
- **Lack of Grievance Redressal Mechanism:** Due to its decentralised nature, it raises a question about whom to approach in case of grievances and who is accountable for data breach.
- **Lack of Content Moderation:** Web 3.0 remains silent on censorship. It might give birth to obscene and provocative things. Removal of obscene or defamatory information, photos or videos will be challenging in this network

What Should be the Way Forward?

- India has used technology in shaping its domestic socio-economic development. (Examples include Aashar, Jan Dhan, UPI, COWIN). In line, India can also leverage this early development stage of Web 3.0 by leading and playing the role of a catalyst.
- Web 3.0 can accelerate the value of India’s digital economy. With such opportunities, there is a need to encourage and incentivise the Startup ecosystem to position India well on the Web 3.0 Map.
- Web 3.0 can be utilised for better user experience of digital government services as well as better-quality data for more evidence-based policymaking.
- Web 3.0’s decentralised nature can be utilised in the fields of science and research to eliminate barriers of patenting and utilising the available resources for global good.
- Prompt actions need to be taken by nations and industrial bodies to have **open, ethical, and interoperable systems** with solid standards.

Food Security

Context: Food security is key in an age of uncertainties. Growing climate-related risks, geopolitical tensions, and macroeconomic shocks make imports costlier than ever before—in both tangible and intangible terms.

- Due to the growing world population, it is estimated that global food production will need to **increase by 60 percent to feed over 9.5 billion people by 2050**.
- **India’s agriculture sector’s GDP stands at US\$ 262 billion**, demonstrating a low dependence on imports. Achieving self-reliance and sustainability in agriculture has led to a critical policy switch.

Food security:

- Food security is defined as a concept that considers both physical and economic access to food while also taking into consideration people's dietary demands and preferences.
- Food security is defined as **"ensuring that all people have access to sufficient, safe, and nutritious food at all times in order to live a healthy and active life."**
- Food security is built on four pillars:
 - Availability
 - Access
 - Utilisation
 - Stability
- The primary problem in achieving the goal of self-sufficiency in emerging nations is food stability and availability.

Challenges with Food Security:

- **Climate-oriented risks:** Prolonged heat waves and an increased frequency of extreme weather events such as floods, droughts and cyclones are also resulting in increased quantum damage-related expenses.
- **Wastages and Losses:** 5-7 percent of India's food grain production is wasted due to procedural inefficiencies; this number is higher for fresh produce with an estimate of losses amounting to about 11 percent.
- **Inadequate storage facilities:** Inadequate and improper storage facilities for grains, which are often stored outside under tarps that provide little protection from humidity and pests.
 - Hot and humid conditions in India also exacerbate the maintenance costs of cold storage facilities.
- **Lack of Awareness:** Lack of education and training on new techniques, technologies and agricultural products. Traditional farming methods are slightly more time consuming and delay the production of food grains, etc.
- **Deteriorating Soil Health:** A key element of food production is healthy soil because nearly 95% of global food production depends on soil.

Reforms to ensure food security:

Water-conserving irrigation: The practice of flood irrigation is largely prevalent even today and it has a reinforcing impact on the depleting levels of groundwater, which, in turn, aggravate drought conditions.

- Moving to micro-irrigation will optimise costs on water and electricity inputs for farmers in the long term, freeing up financial resources for investment in post-harvest technologies.
- **Storage infrastructure:** Cold storage infrastructure and supply chains are an example of foundational interventions that can propel food processing industries, whilst simultaneously enhancing the diversification of crops with farmers being able to lengthen the shelf life of fresh produce.
- **Expanding access to finance:** Global finance pledges and the architecture of financial flows be changed to allow an increased flow of funds to the Global South.
- At a domestic stage, medium to long-term debt financing facilities for investment in viable projects for post-harvest management infrastructure and community farming assets, like the new **Agriculture Infrastructure Fund(AIF)** must be developed to accelerate change in this direction.
- **Crop diversification:** Food availability is a necessary condition for food security. India is more or less self-sufficient in cereals but has deficit in pulses and oilseeds.
- Due to changes in consumption patterns, demand for fruits, vegetables, dairy, meat, poultry, and fishery products has been increasing.
- There is a need to increase crop diversification and improve allied activities to produce such crops and produces in which we are deficient.
- **Tackling climate change:** Food security in India can be achieved by paying higher attention to issues such as climate change, limiting global warming, including the promotion of climate-smart agricultural production systems and land use policies at a scale to help adapt and mitigate ill effects of climate change.

Food Security Programs in India:

- **Mega Food Parks:** This scheme, launched by the government in 2008, provides financial assistance up to 50 crores to set up modern infrastructure facilities for food processing called Mega Food Parks.
- **PM Kisan SAMPADA Yojana:** It is a comprehensive package aiming to create modern infrastructure with efficient supply chain management from farm gate to retail outlet.

- The scheme boosts the growth of the food processing sector in the country and helps in providing better returns to farmers as well.
- **Agriculture Infrastructure Fund:** It is a **Central Sector Scheme** approved by the Union Cabinet in 2020.
 - It aims to provide a medium – long term debt financing facility for investment in viable projects for post-harvest management Infrastructure and community farming assets.
 - The duration of the Scheme shall be from FY2020 to FY2032.
- **Pradhan Mantri Krishi Sinchayee Yojana:** PMKSY is a **Centrally Sponsored Scheme** (Core Scheme) launched in 2015. **Its objectives are:**
 - Convergence of investments in irrigation at the field level,
 - To expand the cultivable area under assured irrigation (Har Khet ko Pani),
 - To improve on-farm water use efficiency to reduce wastage of water,
 - To enhance the adoption of precision-irrigation and other water saving technologies.

Way Forward:

- So, we need a thorough upgradation of storage facilities (especially in rural areas) that can minimise losses in power, water and post-harvest losses, by expanding access to finance for climate resilient technology adoption.
- We need to smoothen access points for private sector innovations that can share the burden of improving agricultural resilience and complement public sector actions.
- It is time we acknowledge the role of modern solutions in overcoming food insecurity, enhancing access to nutrition and ensuring long-term food sector sustainability.



INTERNATIONAL RELATIONS



India – Saudi Arabia Relations

In News: Indian delegation is in Saudi Arabia, and a talk focuses on improving the relationship between India and Saudi.

- Union Minister of External Affairs co-chaired first ministerial meeting of the Committee on Political, Security, Social and Cultural Cooperation (PSSC) with Prince Faisal bin Farhan Al Saud.
- Minister also met with **Gulf Cooperation Council (GCC)** Secretary-General and the two leaders signed an MoU on the mechanism of consultations between India and the six-nation regional bloc.

Recent Developments:

- **On account of remarks on Prophet Mohammad by Nupur Sharma** Saudi Arabia issued a strong statement condemning the same.
- **Covid-19 pandemic:** India provided 4.5 million COVISHIELD vaccines to the Kingdom, whereas, during the second wave, the latter provided India with COVID-relief material, particularly liquid oxygen. Large-scale repatriation exercise of the community due to the pandemic, which has led to more than 8,00,000 Indians being repatriated through Vande Bharat Mission
- **Committee on Political, Security, Social and Cultural Cooperation (PSSC):** established under the framework of the **India-Saudi Arabia Strategic Partnership Council**.
- **India-Saudi Arabia Strategic Partnership Council** – was formed to coordinate on strategically important issues. The council will be headed by the Prime Minister and Crown Prince Mohammed and will meet every two years.
- It has two sub-committees –
 1. Committee on Political, Security, Social and Cultural Cooperation; and
 2. Committee on Economy and Investments.

India – Saudi Arabia Relationship

- India and Saudi Arabia enjoy cordial and friendly relations reflecting the centuries old economic and socio-cultural ties.
- The year 2021-22 commemorates 75 years of India's independence as '**Azadi ka Amrit Mahotsav**'. This celebration also coincides with **75 years of establishment of diplomatic relations between India and Saudi Arabia**.
- The establishment of diplomatic relations in 1947 was followed by high-level visits from both sides.

Bilateral Trade:

- Saudi Arabia is **India's 4th largest trading partner** and **India is the 4th largest market for Saudi exports**.
- Bilateral trade was **\$29.28 billion in FY22**. During this time, India's imports from Saudi Arabia were valued at \$22.65 billion and exports to Saudi were \$6.63 billion.
- More than **18% of India's crude oil imports are sourced** from Saudi Arabia.
- India also **imports around 32% of LPG requirements** from Saudi Arabia

Economic cooperation:

Investments:

- There are around **745 Indian companies registered as joint ventures/100% owned entities with investments worth approximately US\$2 billion in the Kingdom** (October, 2021).
- These **companies** operate in **diverse sectors** such as management and consultancy services, construction projects, telecommunications, information technology, financial services and software development, pharmaceuticals, etc.
- Saudi Investments in India, as of March 2021, amounted to **US\$3.13 billion**.
- Major Saudi investment groups include ARAMCO, SABIC, ZAMIL, E-holidays, and Al Batterjee Group.

- **Other proposed major investments** include the US\$44 billion 'West Coast Refinery & Petrochemicals Project' in Maharashtra, which is being jointly built by Saudi and India corporations.

The Diaspora:

- The **2 million strong Indian community** is the **largest expatriate community** in the country and is 'most preferred' due to their expertise, discipline, law abiding spirit and peace-loving nature.
- Saudi Arabia continues to be one of the most preferred destinations for Indians seeking job abroad. Hence, large numbers of remittances are received from the country equalling to **\$34.5 billion** in 2020.
- In 2019, the two sides announced that India's e-Migrate system would be integrated with the Kingdom's e-Tawtheeq system to streamline the **migration process for workers**.

Cultural Relations:

- India participated as the '**Guest of Honour**' at the 32nd edition of the prestigious **Saudi National Festival of Heritage and Culture – Janadriyah** from February 07 – 28, 2018.
- The annual **Hajj pilgrimage** is another important component of Indo-Saudi bilateral relations.
- **Yoga** has also become a very popular activity in Saudi Arabia, particularly after it was **recognized as a 'sports activity'** in November 2017
- On IDY 2021, an MoU on Yoga Cooperation was signed between the **Saudi Ministry of Sports and India's Ministry of AYUSH**, which paved the way for the establishment of formal Yoga standards and courses in the Kingdom, marking the **first time such standards were being implemented by any country in the Gulf region**.
- The 150th birth anniversary of **Mahatma Gandhi** was marked by a series of **events** that culminated on October 02, 2019 with the **unveiling of the Gandhi bust** at the Embassy.

Way forward

- **Need for a balance policy** in terms of strategic, defence and economic partnership
- **Diversification of trade** relations beyond crude oil and LPG
- **Collaboration on handling terrorism** through sharing of military insights and increasing joint military exercises.

Gulf Cooperation Council

- It is a **political, economic, social, and regional organisation** according to its charter.
- GCC was established by an **agreement concluded in 1981** among **Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE** in view of their special relations, geographic proximity, similar political systems based on Islamic beliefs, joint destiny and common objectives.
- The structure of the **GCC consists of the Supreme Council** (the highest authority), the **Ministerial Council and the Secretariat General**.
- The Secretariat is located in Riyadh, Saudi Arabia.

India-Egypt Relations

In News: Union Defence Minister meets President of Egypt in Cairo. India and Egypt agreed to further develop military cooperation and focus on joint training, defence coproduction and maintenance of equipment.

Historical Relations:

- India and Egypt, two of the world's oldest civilizations, have enjoyed a history of close contact from ancient times. Even prior to the Common Era, **Ashoka's edicts** refer to his relations with Egypt under Ptolemy II.
- In modern times, **Mahatma Gandhi** and **Saad Zaghloul** shared common goals on the independence of their countries
- **Exceptionally close friendship** between Gamal Abdel Nasser and **Jawaharlal Nehru**, leading to a **Friendship Treaty between the two countries in 1955**.

Political Relations:

- India and Egypt share close political understanding based on long history of contacts and cooperation in **bilateral, regional, and global issues**.
- Both countries have cooperated closely in multilateral fora and were the founding members of **Non-Aligned Movement**.
- The year 2022 is of particular significance since it marks the **75th anniversary of diplomatic relation between India and Egypt**.

Economic Relations:

- The **India-Egypt Bilateral Trade Agreement** has been in operation since March 1978 and is based on the **Most Favoured Nation clause and the bilateral trade** has increased more than five times in last ten years.
- The bilateral trade in 2018-19 reached US\$ 4.55 billion.
- Despite Pandemic, the **volume of trade declined only marginally** to US \$ 4.5 billion in 2019-20 and to US \$ 4.15 billion in 2020-21 (Egypt's exports to India were valued at US\$ 1.89 billion and imports from India at US\$ 2.26 billion with India having a favourable trade balance of US\$ 372 million.)
- Bilateral trade has **expanded rapidly in 2021-22**, amounting to 26 billion registering a 75% increase compared to FY 2020-21.
- **India's exports** to Egypt during this period amounted to US\$ 3.74 billion, registering a 65% increase over the same period in FY 2020-21. At the same time, **Egypt's exports** to India reached US\$ 3.52 billion registering an 86% increase.

Development assistance:

- **The grants-in-aid projects include:** Pan Africa Tele-medicine and Tele-education project in Alexandria University, Solar electrification project in Agaween village and Vocational Training Centre for textile technology in Shoubra, Cairo, which have been completed.
- **Technical cooperation and assistance** have been a major part of our bilateral relationship. Since 2000, over 1250 Egyptian officials have benefited from ITEC and other programs like ICCR and IAFS scholarships.
- **In the field of scientific cooperation**, ICAR and the Agricultural Research Centre of Egypt are working in the field of agricultural research.
- **'Science & Technology' cooperation** is implemented through biennial Executive Programmes and Scientific Cooperation Programme between CSIR (India) and NRC (Egypt).
- **Space cooperation** is an emerging vertical of cooperation between India and Egypt. Joint Working Group meetings and discussions between ISRO and NARSS (National Authority for Remote Sensing and Space Sciences) have been held, since an MoU was signed.

Defence Relations:

- There was close cooperation between the Air Forces, with efforts at jointly developing a fighter aircraft in 1960s.
- IAF pilots had also trained Egyptian pilots from 1960s until 1984.
- Most of the current defence cooperation is determined by **Joint Defence Committee (JDC) activities**.
- Egypt participated in the **Multinational Training Exercise for friendly African countries** held at Pune in 2019. The first ever **IAF-EAF Joint Tactical Air Exercise, Desert Warrior**, was held in 2021.
- The first ever Special Forces exercise "**Cyclone 1**" between India and Egypt planned in Jodhpur from 8th – 22nd January 2022 stands postponed.

Cultural Relations:

- **The Maulana Azad Centre for Indian Culture (MACIC)** has been promoting cultural cooperation between the two countries, through regular activities such as Hindi, Urdu and Yoga classes; seminars; film shows; exhibitions and participation in local cultural activities.
- **'Sawt-ul-Hind', Embassy's flagship Arabic magazine** for the past six decades, reached a milestone in July 2017 with the publishing of its 500th edition, depicting the strong bond and vibrant cultural exchanges between the two countries.

Indian Community: At present, the Indian community in Egypt numbers at around 3200, most of whom are concentrated in Cairo.

Way forward:

The year 2022 is of particular significance since it marks the 75th anniversary of diplomatic relation between India and Egypt and there shall be constant effort to reinforce and grow this friendship.

G4 Countries and UNSC Reforms

Context: Reform of the United Nations has been a central theme of External Affairs Minister visit to the United Nations and he also met with his counterparts from Germany, Brazil and Japan under The Group of Four (G4). The group is primarily focused on U.N. Security Council (UNSC) reform, and permanent membership of the body for G4 members, among others.

About G4 Countries:

- The G4 nations comprising **Brazil, Germany, India, and Japan** are four countries which support each other's bids for **permanent seats on the United Nations Security Council**.

About Coffee Club/Uniting for Consensus:

- An informal "**coffee club**", comprising 40-odd members states, has been instrumental in holding back reforms to the **United Nations Security Council**.
- Most members of the club are middle-sized states who oppose bigger regional powers grabbing permanent seats in the UN Security Council.
- The prime movers of the club include **Italy, Spain, Australia, Canada, South Korea, Argentina, and Pakistan**.
- While Italy and Spain are **opposed to Germany's bid for Security Council's permanent membership, Pakistan is opposed to India's bid**.
- Similarly, **Argentina is against Brazil's bid and Australia opposes Japan's**.
- Canada and South Korea** are opposed to developing countries, often dependent on their aid, wielding more power than them at the UN.

Need for UN Reforms:

- Equitable world order** – There is a need for a more equitable world order to uphold the principles of democracy at the global level.
- Inclusivity** – Developing countries like the African countries, need to be made stakeholders in the multilateral institutions and involved in the decision-making process.
- Mitigation of new threats** – In the era of corona pandemic, rising protectionism, increased incidents of terrorism and the threat of climate change, multilateral system must become more resilient and responsive.
- Desperate times call for desperate measures** – There is already a precedent of expansion of G-20 in the face of 2008 Global Financial Crisis.
- Rules of Procedure of General Assembly** – For e.g., the type of majority required to pass a resolution, requirement of approval of the United Nations Security Council etc.

What reforms are required in the United Nations:

- Methods of working of General Assembly** – For e.g., before a document is adopted, each document must be translated to six languages. After that, many times the discussion veers towards the accuracy of the 6 languages. This process has many times delayed the adoption of texts in the UN
- Membership of United Nations Security Council (UNSC)**, including the permanent membership and veto power – Since its inception, the UNSC has been enlarged only once. Even after that, the Permanent members of UNSC have remained fixed. This is problematic as the membership of UN has grown almost four times since its formation.
- Veto Power** – veto power has been the exclusive domain of P5 members. Many countries have put question mark on the existence of veto, which is contrary to democratic principles. Others have questioned the exclusivity of veto, which is limited to the P5 nations, as stated earlier.

Challenges to reforms and G4 demand:

- Making a change in UN is a laborious process as the rules of procedure lean towards rigidity
- **Lack of Consensus** – Although there is a general agreement towards change in the system, but different countries have different perceptions of the requirement for change.
 - For e.g. – G-4 nations demand a seat each as a permanent member, UFC asks for expansion of non-permanent seats, African union wants its representation at any cost etc.
- **Narrow political considerations** – Countries view change in their own self-interest, rather than taking a wide world view.
 - For e.g. – many countries would like an expansion in the non-permanent space, so that they have an increased chance of getting elected to the membership of UN.
- **PGA's (see inset) opposition to India's demand** – Yet another Challenge to India's demand for recognition of India, specifically, and G-4, in general, as the permanent members of UNSC is the current PGA of UN.
 - The current PGA belongs to Turkey and is not friendly to India's demand. In fact, he is biased towards Pakistan-led Coffee Club, which seeks to limit expansion of permanent membership of UNSC
- **Veto power of P5** – Support of all five permanent, veto-wielding members is required for expansion of UNSC. India must be cautious that it keeps on enjoying support from all P5 members, especially China, which so-far has been ambiguous towards India's candidature as a permanent member of UNSC
- **African position** – India has been generally supportive of African position where it has demanded one seat for its nominee.
 - The problem is that Africa wants to reserve the right to nominate the country by itself, rather than leaving it to the UN General Assembly. This is not acceptable to many members.
- **Lack of Records** – One major issue is the lack of records of ongoing negotiations. Every time the meeting starts, the negotiations must start from scratch, as no records are maintained of previous discussions.

Way Forward:

- **Diplomatic outreach** – India along with G4 needs to build upon its strengths through a diplomatic outreach to the major nations with whom it has friendly relations.
 - For e.g., India is the only nation whose candidature to United Nations Security Council (UNSC) is not opposed by any veto-wielding nation. Even China, with whom India has been engaged in a border standoff, has never publicly opposed India's stance.
- **India's soft power** – India has continuously supported Least Developing Countries (LDCs) of Africa and Small Island nations in their developmental efforts.
 - This has led to development of India's image as a benevolent and friendly country.
- **Contributions to United Nations** – India needs to keep an eye on China, which has now become the biggest contributor of funds to the United Nations.
 - Also, China has now started sending troops to United Nations peace-keeping missions, with the agenda of rebuilding its global reputation
- **Diversification** – Apart from United Nations Security Council, India needs to diversify its energy towards other agencies like International Monetary Fund, World Trade Organisation, World Health Organisation, to create a perception where it is considered as a natural leader.
 - For e.g. – Indian Prime Minister recently spoke at Economic Council (ECOSOC) to attach a sense of importance to the institution
- **Debate on India's strategy** – Reforming some institutions might require sacrifice on India's part, for which we should have a clearly outlined strategy.
 - For e.g. – India has been a major beneficiary of World Bank loans. If we need a leadership position, we might need to give up on these loans.

India – Russia Relations

Context: On the side-lines of Shanghai Cooperation Organization summit, the Prime Minister of India and the President of Russia discussed about defence cooperation amid the ongoing Russia – Ukraine war.

Historical relationship:

- During that, Russia has mentioned the support of the **Soviet Union for India's sovereignty over the disputed territories of Kashmir and Portuguese coastal enclaves such as Goa**. Even after the **abrogation of Article 370** Russia still supports India's claim over Kashmir.
- The USSR agreed to transfer technology to co-produce the **Mikoyan-Gurevich MiG-21** jet fighter in India in 1962. But the USSR rejected a similar move to China.
- India signed the **Indo-Soviet Treaty of Friendship and Cooperation** in 1971 during the Bangladesh liberation war.

Political Relations:

- In 2019, President Putin signed the Executive Order on awarding PM of India with Russia's highest state decoration – **The order of St Andrew the Apostle**.
- Two Inter-Governmental Commissions – one on **Trade, Economic, Scientific, Technological and Cultural Cooperation (IRIGC-TEC)**, and another on **Military-Technical Cooperation (IRIGC- MTC)**, meet annually.

Defence and Security Relations

- India-Russia military-technical cooperation has evolved from a buyer-seller framework to one involving joint research, development and production of advanced defence technologies and systems
- Joint **Tri-Services Exercise 'INDRA 2019'** between India and Russia was carried out simultaneously in Babina, Pune, and Goa in 2019.

The joint military programmes between India and Russia include:

- BrahMos cruise missile programme
- 5th generation fighter jet programme
- Sukhoi Su-30MKI programme
- Ilyushin/HAL Tactical Transport Aircraft
- KA-226T twin-engine utility helicopters

The military hardware purchased/leased by India from Russia includes:

- S-400 TRIUMF
- Kamov Ka-226 200 to be made in India under the Make in India initiative
- T-90S Bhishma
- INS Vikramaditya aircraft carrier programme
- S-400 air defence system

India Russia Trade Relations:

- The two countries intend to increase bilateral investment to US\$50 billion and bilateral trade to US\$30 billion by 2025
- In 2019, total bilateral trade between the two countries from January-September, 2019 stood at USD 7.55 billion
- From 2013 to 2016 there was a major decline in the trade percentage between the two countries. However, it increased from 2017 onwards and a constant increase was noticed in 2018 and 2019 as well

Cultural Relations:

- About 20 Russian Institutions, including leading universities and schools, regularly teach Hindi to about 1500 Russian students.
- Apart from Hindi, languages such as Tamil, Marathi, Gujarati, Bengali, Urdu, Sanskrit and Pali are taught in Russian Institutions.
- Indian dance, music, yoga, and Ayurveda are among few other interests that people of Russia enjoy.

Why is Russia Important for India?

- **Russia's status in international sphere:** Russia remains, and will remain a pre-eminent nuclear and energy power and a permanent member of the United Nations Security Council
- **Multipolar World Politics:** Since the world is becoming increasingly multipolar, maintaining close and strategic relations with Russia and the US at the same time is indispensable for India. Strong partnership with Russia provides India leverages to deal with other countries.
- **Support for UNSC seat:** Russia has stated publicly that it supports India receiving a permanent seat on the United Nations Security Council.
- **Counterbalance to China Aggression:** India has no option but to have a close relationship both with the US and Russia and to manage its difficult relationship with China. So long as Russia's relationship with the West remains strained, Russia will look towards China. So long as Sino-Indian relations remain troubled, Russia's going into the Chinese sphere of influence will not suit India.
- **India's energy security:** Russia has huge reserves of oil. India to look towards Russia as an alternative source of energy supplies as the situation in the Middle East is escalating with threats to essential oil trade routes

Challenges in India Russia Relationships:

- **The rapid expansion of India-US relations:** This is one of the most cited reasons for strain in India-Russia relations. The development of India US defence cooperation is rapid since 2008.
- In 2014 US emerged as the top arms supplier to India by overtaking Russia.
- Further, India also signed all the Foundational agreements with the US. Such as LEMOA, COMCASA, BECA.
- Due to these developments, Russia changed their decades-old policy and start supplying China with weapon systems like Sukhoi 35 and the S-400 missile defence system.
- **Closer proximity of Russia towards China:**
 - Russia already proposed a **Russia-India-China (RIC)** forum of foreign ministers. But there is no major diplomatic success of RIC due to India's unresolved issues with China.
- **China-Russian ties** are growing due to their shared interest in opposing the US. The intense geostrategic rivalry between China and the US in the region. Russia which opposes the US joined hands with China. This is evident as **Russia joined the Chinese One Belt One Road initiative.**

Conclusion: India and Russia continue to share a common strategic rationale for their relationship: apart from bilateral synergies, the two are members of various multilateral organisations including **BRICS, RIC, G20, East Asia Summit and SCO**—where avenues for cooperation on issues of mutual importance exist.

On the whole, Both India and Russia will have to learn to navigate their relationship amidst challenges emerging not just from bilateral factors but also regional and global ones, as both countries seek to strengthen their position at a time of flux in the international order.



HISTORY AND ART & CULTURE



Subhas Chandra Bose

In News: A statue of Subhas Chandra Bose was unveiled by Prime Minister at India Gate, inaugurated along with the Kartavya Path that was earlier known as Rajpath.

Subhas Chandra Bose's early life

- Born to an **upper-class Bengali family in 1897 in Cuttack**, Subhas Chandra Bose was the ninth child of **Janakinath and Prabhavati Bose**.
- In 1909, S C Bose moved to **Ravenshaw Collegiate School**, where he completed his secondary education.
- While he continued his European education throughout his life, he **became less drawn to Anglicized ways than his family**.
- Influenced by the **teachings of Ramakrishna and his disciple Swami Vivekananda**, as well as the themes of **Bengali novelist Bankim Chandra Chatterjee in his novel Ananda Math**, Subhas found what he was looking for: **"his Motherland's freedom and revival"**.
- After school, he entered the **Presidency College in Calcutta in 1913**, where he studied philosophy.
- His **earliest battle with British authority** occurred while he was a student, against **Professor of History E F Oaten**, who had once in class spoken about England's civilizing mission in India.
- Afterwards, Bose went to **Cambridge University to prepare for the Indian Civil Services (ICS) exam in 1920**.
- But later, determined to **join the struggle for India's freedom**, he abandoned the project and resigned from the ICS to **join the Mahatma Gandhi-led national movement**.

Bose's Disagreements with Gandhi

- After reaching Bombay, now Mumbai, in 1921, he obtained an audience with Gandhi to get a better understanding of his plan of action.
- While Gandhiji was willing to **wait a long time for Independence**, **Bose wanted immediate action**, if not immediate results.
- **Gandhiji was anti-materialistic and hostile to modern technology**, Bose saw technology and mass production as **essential to survival and dignity**.
- Gandhiji wanted a **decentralized society and disliked the modern state**; Bose wanted a **strong central government and saw the modern state as the only solution to India's problems**.
- And finally, **Bose did not share Gandhi's dedication to non-violence**.
- Despite tensions between the two, Bose was well aware of the significance of a leader like Gandhi. **Bose was the first to call him the "father of the nation" during an address from the Azad Hind Radio from Singapore in July 1944**.

The rift within the Congress

- Bose devoted his life to the nationalist movement, gaining considerable political influence and becoming one of the most powerful leaders in the Congress party.
- In 1938, he was **elected Congress president in the Haripura session**, where he tried to push for **swaraj as a "National Demand"** and **opposed the idea of an Indian federation** under British rule.
- He stood for **re-election in 1939 and defeated Dr Pattabhi Sitaramayya**, the Gandhiji-backed candidate.
- **12 of the 15 members of the Working Committee resigned from their roles**
- Bose tried to set up another working committee, but after being unable to do so, was forced to resign and was replaced by Prasad.
- Within a week, he created the **"Forward Bloc"** within the Congress Party, in order to bring the **radical-left elements of the party together**.

A dramatic escape

- **Bose was arrested in 1940** before he could launch a campaign to remove the monument dedicated to the victims of the **Black Hole of Calcutta**, an incident when a number of European soldiers died while imprisoned in 1756.
- After going on a hunger strike, he was released from jail in December.
- He soon began his escape from India, travelling by road, rail, air and foot in various disguises to avoid British surveillance.
- He entered **Soviet-controlled Kabul via the northwest of India** and finally reached **Nazi Germany**, where he remained for two years.
- He was provided assistance to defeat the British, and **Bose was allowed to start the Azad Hind Radio and was provided with a few thousand Indian prisoners of war captured by Germany.**
- Bose soon turned his focus to **South East Asia, specifically Singapore, a British stronghold that had been taken over by Japan**

The INA and World War II

- The Indian National Army was **formed in 1942**, consisting of thousands of Indian prisoners of war captured by the Japanese, and supported by Japanese troops.
- After his arrival in Singapore, **Bose**, issued from there **his famous call, 'Delhi Chalo'**, and announced the **formation of the Azad Hind Government** and the Indian National Army on 21st October 1943.
- The **headquarters of the provisional government was moved to Rangoon in January 1944**, and after fighting at the **Arakan Front**, the **INA crossed the Indo-Burma border and marched towards Imphal and Kohima in March.**
- The **Chalo Delhi campaign ended at Imphal however**, as the British and British Indian armies, were able to defeat the Japanese forces and the INA and push them out of Kohima as well.
- After the **Japanese surrendered** on August 16, **Bose left South East Asia on a Japanese plane and headed toward China.** The plane, however, crashed, leaving Bose badly burned and dead.



GEOGRAPHY



Urban Flooding

Context: Parts of Bengaluru, India's IT and Startup capital, have been facing unprecedented floods in the recent days. This is not the first instance of urban flooding in India. In fact, urban flooding is becoming increasingly common in many parts of the country with this monsoon season itself seeing many such instances in the states of Rajasthan, Gujarat, and Madhya Pradesh.

What are the reasons for Urban Flooding?

- **Urban Flooding** is an inundation of land in a constructed setting, particularly in densely populated areas, caused by rainfall overwhelming the capacity of drainage systems.

Natural Reasons

- **Higher rainfall:** As per the IMD, monsoon has become frequent and unpredictable.
- **Storm surges (for coastal cities):** Cyclone Amphan in 2020 flooded the streets of Kolkata. Within eastern India, the storm killed 98 people and caused \$13.8 billion (2020 USD).
- **Climate Change:** Exacerbated by changing climate, resulting in extreme events. The climate change has caused an increase in the frequency of short duration heavy rainfall leading to higher water run-off.

Anthropological Reasons:

- **Encroachments on Drainage Channels:** In Indian cities and towns, due to increased land prices and less availability of land in the city centre settlements are coming up in low-lying areas, usually as encroachments over lakes, wetlands and riverbeds. On the contrary, there have been large scale encroachments without widening the natural drains. Consequently, the capacity of the natural drains has decreased, resulting in flooding.
- **Inability to manage the city's drainage systems:** The Hyderabad floods of October 2020 occurred because discharge of water did not take place on time. And when water was discharged it was in a sudden, uncontrolled manner.
 - Unplanned and sudden release of water from dams and lakes lead to floods in an urban area, without giving the public enough time to respond. Example: Chennai Floods 2015 due to release of water from Chembarambakkam Lake.
- **Antiquated drainage infrastructure:** In majority of the cities, there exists century-old drainage system (developed during colonial time period) which covered only a small part of the core city. In the last 20 years, these cities have grown at least four times its original built-up area and not much was done to address the absence of adequate drainage systems.
- **Destruction of Wetlands:** Neglecting issues of incremental land use change, particularly of those commons which provide us with necessary ecological support — wetlands. This has led to creation of urban terrain which is incapable of absorbing, holding and discharging water.
- **Urban heat island effect** also results in increased rainfall over urban areas that in turn leads to flooding.
- **Unsustainable Development:** A lot of urban flooding such as the recent one in Bengaluru is a result of unregulated construction in regions such as wetlands and floodplains.
- **Poor Governance:** Urban expansion, which is often carried on in collusion with urban authorities, at the expense of natural drainage of water. CAG report (last year) pulled up Bengaluru municipality for this poor management.
 - In 2019, Patna faced massive urban floods in late September. One of the reasons the municipal authorities were unable to deal with the problem was that they could not even locate the drainage map of the city, which has a population of 5.8 million according to the 2011 Census.
- **Ethical Dilemma between Development vs Environment:** Any policy which prioritises environmental concerns over construction will have to deny permission for a lot of construction activity in India, especially in cities.
- **Illegal Mining Activities:** Illegal mining of river sand and quartzite for use in building construction deplete the natural bed of the rivers and lakes. It causes soil erosion and reduces the water retention capacity of the waterbody increasing the speed and scale of water flow. Example: Jaisamand Lake- Jodhpur, Cauvery river- Tamil Nadu.

What are the Impacts of Urban Flooding?

- **Loss of Life and Property:** Urban floods are often associated with loss of life and physical injury either directly due to the effect of floods or indirectly due to infections by water-borne diseases spreading during the inundated period.
- **Disruption to Civic Amenities:** Urban flooding has localised impacts like structural damage to buildings, property, crops. Besides, it causes disruptions of water supply, sewerage, power and transmission lines, communication, traffic-road and railways and other infrastructure.
- **Psychological Impacts:** Loss of shelter and relatives creates emotional turmoil in the mental health of the stranded. The recovery process in case of such incidents is a tiresome process and time consuming that often leads to long lasting psychological trauma.
- **Ecological Impacts:** Trees and plants are washed away during extreme flood events and riverbank erosion is caused by high-speed flood water.

What are the steps to be taken to mitigate Urban Flooding?

- **Sponge Cities Mission:** The idea of a sponge city is to make cities more permeable so as to hold and use the water which falls upon them.
- **Planned Development:** Implementation of Atal Mission for Rejuvenation and Urban Transformation (AMRUT) in a planned manner.
 - The Brihanmumbai Storm Water Disposal System or BRIMSTOWAD, the project to overhaul Mumbai city's old stormwater drainage system was started after the 2005 deluge.
- **Change in Policy mindset:** Water-sensitive urban design (WSUD in Australia) regards urban stormwater runoff, and waste water as a resource rather than a nuisance or liability.
- **Ecological Solutions:** Bioswales or 'Rain Garden' (New York) are landscape features that collect polluted stormwater runoff, soak it into the ground, and filter out pollution.
- **Rainwater harvesting:**
 - People must invest heavily in rainwater harvesting.
 - Need to make sure that collection of the rainwater as much as possible, use that to recharge our aquifers and try to design our plots and apartments and gated communities as zero rainfall discharge areas.
- **Design on a watershed basis:**
 - Every lake is a micro or mini watershed. Authorities must understand that a watershed is a hydrological unit, understand how water flows and ensure that it is drained into channels and flows into the lake.
 - When the lake overflows, it connects to the next downstream lake, for which they will need sluice gates that they can operate.

What is Sponge Cities?

- The idea of a sponge city is to make cities more permeable so as to hold and use the water which falls upon it.
- Sponge cities absorb the rain water, which is then naturally filtered by the soil and allowed to reach urban aquifers. This allows for the extraction of water from the ground through urban or peri-urban wells.
- In built form, this implies contiguous open green spaces, interconnected waterways, and channels and ponds across neighbourhoods that can naturally detain and filter water
- These can all be delivered effectively through an urban mission along the lines of the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), National Heritage City Development and Augmentation Yojana (HRIDAY) and Smart Cities Mission.

What steps need to be taken to take forward the idea of Sponge Cities Mission?

- **Wetland policy:**
 - In most of our lakes, the shallow ends, which often lie beyond the full tank level, have disappeared.
 - These shallow ends are best characterised as wetlands; sometimes owned by private individuals, other times existing as ecological commons.
 - Regardless of ownership, land use on even this small scale needs to be regulated by development control.
- **Watershed management and emergency drainage plan**
 - This should be clearly enunciated in policy and law.
 - Urban watersheds are micro ecological drainage systems, shaped by contours of terrain.
 - Detailed documentation of these Urban watersheds must be held by agencies where natural boundaries instead of governance boundaries (like wards) are used to come up with drainage plan.

- The Metropolitan Development Authorities, National Disaster Management Authority, State revenue and irrigation departments along with municipal corporations should be involved in such work together.
- **Ban against terrain alteration**
 - Lasting irreversible damage has been done to the city by builders, property owners, and public agencies by flattening terrain and altering drainage routes.
 - Terrain alteration needs to be strictly regulated and a ban on any further alteration of terrain needs to be introduced.
- **Change in material usage**
 - To improve the city's capacity to absorb water, new porous materials and technologies must be encouraged or mandated across scales.
 - Examples of these technologies are bioswales and retention systems, permeable material for roads and pavement, drainage systems which allow storm water to trickle into the ground, green roofs and harvesting systems in buildings.
 - These not only reduce run-off and the load on infrastructure, but also help keep water in the city for later use.
- **Involvement of other stakeholders**
 - Urban floods of this scale cannot be contained by the municipal authorities alone. Nor can they be dealt with by the State government.
 - It can be managed with concerted and focused investments of energy and resources.
 - Such investments can only be done in a mission mode organisation with active participation of civil society organisations at the metropolitan scale.

The Bay of Bengal

Context: The Bay of Bengal is experiencing an increase in geo-economic, geopolitical, and geo-cultural activity. Therefore, at the fourth BIMSTEC summit, Prime Minister Narendra Modi announced the opening of the **Centre for Bay of Bengal Studies (CBS)** at Nalanda University.

Rethinking the Bay:

- The setting up of a dedicated institution on the bay has once again demonstrated India's commitment to advancing constructive agendas by forging connections and setting up platforms for all those with an interest in the Bay.
- CBS will offer collaborations in areas such as geo-economics and geopolitics, ecology, trade and connectivity, maritime security, maritime law, cultural heritage, and blue economy to generate opportunities for the Bay region.
 - This will strengthen India's overall framework for maritime engagement, which aims to advance sustainable economic growth for all by fostering closer nautical ties.

Significance of the Bay:

- About **half the world's container traffic passes through this region**, and its ports handle approximately one third of world trade, thus becoming the **"economic highway of the world."**
- It created a conduit between the East and the West in terms for trade and culture. An Indo-Pacific orientation and the realignment of global economic and military power towards Asia have had a considerable impact on the Bay region.
- The key sea lanes of communication in this area are lifelines for global economic security and are crucial to the energy security that powers the economies of many countries in the region.
- Non-traditional dangers including terrorism and climate change have become more prevalent.
- The Bay also provides an opportunity for greater regional cooperation in the environmentally friendly exploration of marine and energy resources.
- The Bay has a biodiverse marine environment and home to many rare and endangered marine species and mangroves, which are essential to the survival of the ecology and the fishing sector.

Disorder at the Bay:

- The region's maritime environment has changed as a result of major powers expanding their economic and geopolitical influence.
 - Political and cultural engagement, together with economic competition, have taken on new dimensions.

- Problems such as population growth, altered land use, excessive resource exploitation, salinisation, sea level rise, and climate change are exerting significant strain on the Bay's environment.
- Operational discharge from small and medium feeder ships, shipping collisions, unintentional oil spills, industrial waste, pollution, and the accumulation of non-biodegradable plastic litter are all contributing to the deterioration of the Bay.
 - A dead zone has formed as a result, and the mangrove trees that protect the shore from the fury of nature are under more threat than ever.

Way forward:

- For a better knowledge of challenges, and strategies to overcome them for the sustainable development of the region, more focused and interdisciplinary study is required on these issues.
- By founding the CBS, Nalanda University has already started its journey and given the nation a unique interdisciplinary research centre devoted to Bay-focused teaching, research, and capacity building. Additionally, scholars from many countries and academic streams are already participating in CBS's first certificate programme on the Bay.
- It is essential that nautical neighbours develop a partnership and cooperate because of the maritime domain's interrelated and interdependent nature. A few concerns that need immediate attention include expanding cooperation in maritime safety, maritime connectivity and the ease of maritime transit.

About Information Fusion Centre (IFC) for the Indian Ocean Region (IOR):

- The IFC has been established at the **Indian Navy's Information Management and Analysis Centre (IMAC) in Gurugram, Haryana.**
- IFC is the single point centre linking all the coastal radar chains to generate a seamless real-time picture of the nearly 7,500-km coastline.
- All countries that have signed white shipping information exchange agreements with India can now position liaison officers at the IFC. Countries like USA, UK have posted their officers in IFC-IOR.



ENVIRONMENT



Carbon Trading Policy

India is currently the third largest carbon emitter in the world, behind the US and China.

What is the Energy Conservation (Amendment) Bill 2022?

In order to facilitate the achievement of more ambitious climate change targets and ensure a faster transition to a low-carbon economy, the government is seeking to strengthen a 20-year law, called the Energy Conservation Act of 2001, which has powered the first phase of India's shift to a more energy-efficient future.

The Bill to amend the Energy Conservation Act, 2001 –

- First, it seeks to make it compulsory for a select group of industrial, commercial and even residential consumers to use green energy. A prescribed minimum proportion of the energy they use must come from renewable or non-fossil fuel sources.
- Second, it seeks to establish a domestic carbon market and facilitate trade in carbon credits.

Importantly, the amendment Bill seeks to widen the scope of energy conservation to include large residential buildings as well. Till now, the energy conservation rules applied mainly on industrial and commercial complexes.

At the 2021 United Nations Climate Change Conference (COP26) summit in November 2021, [India promised to reach zero carbon emissions by 2070](#) and reduce its emissions by one million tonnes in the next 10 years. Establishing a **carbon credit market is the first step** toward this goal.

Carbon Emission (CE)

- Occurs during the burning of carbonaceous fossil fired fuels, or in industrial manufacturing processes of cement, steel, chemicals etc.
- CE can be eliminated by substituting energy source/fuel- renewable solar/wind energy for thermal power; electric vehicles for petrol/diesel vehicles; and domestic electric appliances instead of kerosene/gas.

What is a carbon market?

- In simpler terms, a carbon market will **create incentives to reduce emissions or improve energy efficiency**.
- These commitments would drive demand for voluntary carbon credits in India.
- The annual demand for voluntary carbon credit in India is expected to touch 500+ million units by 2030

Under the Kyoto Protocol, the predecessor to the Paris Agreement, carbon markets have worked at the international level as well.

- The Kyoto Protocol had prescribed emission reduction targets for a group of developed countries.
- Other countries did not have such targets, but if they did reduce their emissions, they could earn carbon credits.
- These carbon credits could then be sold off to those developed countries which had an obligation to reduce emissions but were unable to.
- This system functioned well for a few years. But the market collapsed because of the lack of demand for carbon credits.

How is the price of carbon fixed?

Global experience suggests that carbon pricing is initially introduced in high carbon-intensive sectors such as power, and then its scope is extended to other carbon-intensive sectors, such as cement and metals, over some time.

- Currently, India does not have a cap and trade policy or an explicit carbon price. The country has an implicit pricing structure defined by Internal Carbon Pricing (ICP).

- As per the Carbon Disclosure Project (CDP), ICP is a voluntarily determined price used within an organization to value the cost of one unit of CO₂ emission. This reflects the carbon market price in the region where the company operates.

Carbon markets will also open up new horizons for companies engaged in developing/consulting/trading carbon credits. On the other hand, it will be detrimental to the prospects of coal-based power generation capacities and Coal India's growth ambitions.

What are the benefits of adopting carbon trading policy?

Any emission reduction is a step closer to tackle global warming and carbon trading scheme helps in the same.

- It achieves the objective of GHG emission reduction at low cost with caps in emissions, sanctions in the form of trade and fines as seen in Kyoto protocol.
- It helps in more effective way to address the global warming with the development of new technologies and technology transfer to utilize the renewable energy potential. E.g., Hydroelectric project investments in countries like Bhutan by India.
- Emission trading provides a way of establishing rigour around emissions monitoring, reporting and verification – essential for any climate policy to preserve integrity.
- Emission trading results in a synergetic effect by way of integrations and collaborations and collective effort to fight the climate change. E.g., an industrial area in a third-tier town may not be able to contribute to climate change if not collaborations with global companies which is facilitated by the emission trading.

What are the concerns with the carbon trading policy?

- It becomes ineffective if the companies have the wherewithal to invest heavily offsetting the carbon price they pay.
- Determining physical actions that companies must take, with no flexibility, is not guaranteed to achieve the necessary reductions.
- Establishing a regulated price is a policy nightmare and take years to come to a consensus and also faces a backlash. E.g., Carbon cess.
- As accounting the exact emissions is difficult, the issues in emission counting rendered by the developed countries has resulted in just number magic rather than actual reduction in emissions.
- Creating a market in something with no intrinsic value such as carbon dioxide is very difficult.
- The low carbon pricing mixed with politics has made the scheme ineffective where in the overall emissions have increased rather than decrease.

Why Carbon Markets in significant for India?

Indian companies have already been participating in the global carbon market. This is done through one of three modes — **carbon neutrality, Renewable (RE 100), and Science Based Targets (SBT)**.

- Companies participating in RE100 and SBT work to lower their emissions directly by reducing their reliance on harmful activities.
- Businesses that practise carbon neutrality invest in carbon offsets to achieve an equivalent decrease.
- Both domestic and foreign markets are sourced for the acquisition of these offsets.
- Though the market will largely be voluntary to begin with, once it becomes mandatory for a specific sector, the scheme will remain open for the Indian voluntary market buyer as mentioned in the Bill. This will open the market for newer avenues even as the demand for voluntary carbon credits grows exponentially in the country

Clean Development Mechanism (CDM) of the Kyoto Protocol

- Developing countries, particularly India, China and Brazil, gained significantly from the carbon market under the Clean Development Mechanism (CDM) of the Kyoto Protocol.
- India registered 1,703 projects under the CDM which is the second highest in the world. Total carbon credits known as Certified Emission Reductions (CERs) issued for these projects are around 255 million amounting to S.\$2.55 billion.
- Therefore, logically, India has a lot to gain from a thriving carbon market. However, with the ratification of the Paris Agreement, the rules of the game have changed.

What is the way ahead?

India is no stranger to carbon credits, which it has accumulated through participation in Clean Development Mechanism (CDM) projects. The strong experience in CDM projects has helped India develop projects that qualify for Voluntary Carbon Credits. However, compared to developed markets like the US, Voluntary Carbon Credits market in India is still in its infancy.

- There is a need for regulatory frameworks and policy guidelines that provide clear mandates on emission reductions.
- A new carbon trading system must be accompanied by proper pricing of credits for it to act as a check on hardcore polluters.
- Both the Centre and State need to figure out a way to bring large buildings under the law – since power is a subject that both states and the central government have jurisdiction over. For the changes to be truly effective, they need to be enforced by state governments at the local level

Climate Reparation

Context: Facing the worst flooding disaster in its history, Pakistan has begun demanding reparations, or compensation, from the rich countries that are mainly responsible for causing climate change.

What are climate reparations?

- Climate reparations **refer to a call for money to be paid by the Global North to the Global South as a means of addressing the historical contributions** that the Global North has made (and continues to make) toward climate change.
- Countries in the Global North are responsible for **92% of excess global carbon emissions**.
- Despite this, countless studies have shown that countries across the Global South are facing the sharpest end of the consequences when it comes to climate change—from **severe heat waves in India to flooding in Kenya and hurricanes in Nicaragua**.
- In repeated public statements, Pakistan’s Minister for Climate Change has been saying that while her country **makes negligible contribution to global warming**, it has been among **the most vulnerable to climate change**.
- The **current floods have already claimed over 1,300 lives**, and caused economic damage worth billions of dollars.
- Pakistan’s demand for reparations appears to be a long shot, but the principles being invoked are **fairly well-established in environmental jurisprudence**.
- Almost the **entire developing world, particularly the small island states**, has for years been insisting on setting up an international mechanism for financial compensation for loss and damage caused by climate disasters.

Historical emissions argument

- The demand for compensation for **loss and damage from climate disasters** is an extension of the universally acknowledged “**Polluter Pays**” principle.
- In the climate change framework, the **burden of responsibility falls on those rich countries that have contributed most of the greenhouse gas emissions** since 1850, generally considered to be the **beginning of the industrial age**.
- The **United States and the European Union, including the UK, account for over 50% of all emissions during this time**.
- If Russia, Canada, Japan, and Australia too are included, the combined contribution goes past 65%, or **almost two-thirds of all emissions**.
- **Significance of Historical responsibility:**
 - Carbon dioxide remains in the **atmosphere for hundreds of years**, and it is the cumulative accumulation of this carbon dioxide that **causes global warming**.
 - A country like India, **currently the third largest emitter**, accounts for only 3% of historical emissions.
 - China, which is the **world’s biggest emitter for over 15 years now**, has contributed about 11% to total emissions since 1850.

Implications:

- While the **impact of climate change is global**, it is much more severe on the poorer nations because of their geographical locations and weaker capacity to cope. This is what is giving rise to **demands for loss and damage compensation**.
- Countries that have **had negligible contributions to historical emissions** and have severe limitations of resources are the ones that face the most devastating impacts of climate change.

Admission of Responsibility

The **UN Framework Convention on Climate Change (UNFCCC)**, the 1994 international agreement that lays down the broad principles of the global effort to fight climate change, explicitly acknowledges this differentiated responsibility of nations.

- It is this mandate that later evolved into the **\$100 billion amount that the rich countries agreed to provide** every year to the developing world.
- The **Warsaw International Mechanism (WIM) for Loss and Damages**, set up in 2013, was the **first formal acknowledgment** of the need to compensate developing countries struck by climate disasters. It so far has focused **mainly on enhancing knowledge and strengthening dialogue**.
- At the **recent climate conference in Glasgow**, a three-year task force was set up to discuss a funding arrangement.
- According to a recent report by the **UN Office for the Coordination of Humanitarian Efforts (UNOCHA)**, prepared for the UN General Assembly, annual funding requests related to **climate-linked disasters averaged \$15.5 billion** in the three-year period between 2019 and 2021.
- The economic loss from **cyclone Amphan in India and Bangladesh in 2020 has been assessed at \$15 billion**.

The report said that the United States alone is estimated to have inflicted more than \$1.9 trillion in damages to other countries due to its emissions. Then there are **non-economic losses as well, including loss of lives, displacement migration, health impacts, damage to cultural heritage**.

The report also said that the **unavoidable annual economic losses** from climate change were projected to reach somewhere between \$290 billion to \$580 billion by the year 2030.

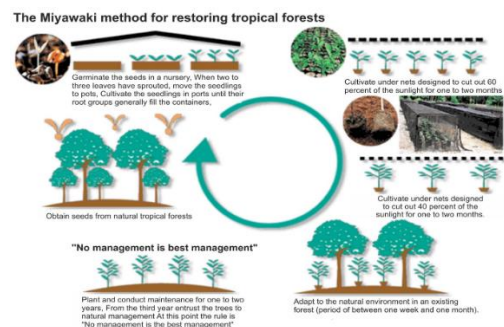
MY VILLAGE, MY FOREST' under 'MIYAWAKI METHOD

Context: Kuharianwali, a village in the **Fazilka district of Punjab**, has become a trendsetter in expanding forest cover. As of 2021, according to data from the Forest Research Institute, the district had **just 1.34 per cent forest cover**, one of the lowest in the state.

The district administration knew it had to do something to drastically change the picture. So, they launched a pilot project called "**MY VILLAGE, MY FOREST' by applying 'MIYAWAKI METHOD'** as a result the forest is now self-sustainable as plants have gained enough strength.

What is this Miyawaki method is all about?

- Miyawaki is a technique pioneered by **Japanese botanist Akira Miyawaki**, that helps build dense, native forests in a short time.
- It has revolutionised the **concept of urban afforestation** by turning backyards into mini-forests.
- This method includes **planting trees (only native species)** as close as possible in the same area which not only saves space, but the planted saplings also support each other in growth and **block sunlight reaching the ground**, thereby preventing the growth of weed.
- The saplings become **maintenance-free (self-sustainable)** after the first three years.



Miyawaki Process:

- The native trees of the region are identified and divided into four layers — **shrub, sub-tree, tree, and canopy**.

- The **quality of soil** is analysed and biomass which would help enhance the perforation capacity, water retention capacity, and nutrients in it, is mixed with it.
- A mound is built with the **soil and the seeds** are planted at a very high density — three to five sapling per square meter.
- The ground is covered with a thick layer of mulch.

Benefits of Miyawaki Method:

- **Faster Process and Dense Forest:** This method creates mini forests. They grow 10 times faster and become 30 times denser and 100 times more biodiverse than those planted through conventional methods.
- **Faster Regeneration of Land:** Miyawaki forests are designed to regenerate land in far less time. It takes over 70 years for a forest to recover on its own.
- **Self-Sustainable:** The saplings become self-sustainable after the first three years.
- **Environmental Benefits:** These mini forests help lower temperatures in concrete heat islands, reduce air and noise pollution, attract local birds and insects, and create carbon sinks.
- Miyawaki method helps to **create a forest in just 20 to 30 years**, while through conventional methods it takes anywhere between 200 to 300 years.

Sustainable Energy

In News: TATA Power Renewable Microgrid Ltd (TPRMG), a wholly owned subsidiary of TATA Power, has joined hands with Small Industries Development Bank of India (SIDBI) to provide **1,000 green energy ventures** throughout the country.

- TATA Power manages one of the **biggest microgrid systems in the world** and works on the **solar off-grid plant** with energy storage to supply power in the remote parts of the country.

About:

- **Microgrids** are energy distribution systems that include a generator and storage system that can be controlled either on-grid or off-grid.
- A microgrid is a very important infrastructure that helps in providing **clean, affordable, and reliable electricity in rural/remote areas where the main grid has limited or no reach**.
- One of the most important aspects of microgrids is **operation and maintenance**. Chhattisgarh Renewable Energy Development Agency (CREDA) has a dedicated cell for Operation and Maintenance.
- Every village of the mini-grid has **one operator**. One cluster technician for every 15-20 villages has been provided by CREDA. The **maintenance of the battery** is the most important component for energy storage.
- The **collection efficiency** of the plant should meet the minimum requirements of **financial sustainability**.
- **Capacity-building measures** need to be undertaken for the technicians, villagers, and other stakeholders involved in the operation of microgrids.
- TPRMG technology has a **one-meter box** that can provide supply to around **six customers** with **remote monitoring** and controlling features in it with load limiting, time of day and **safety features** available with it.

Significance of microgrids:

- Non-polluting energy producers can be **transformative for rural India**, which largely depends on diesel generators to meet its electricity needs.
- They contribute towards **reducing emissions in the rural areas** and help in the creation of **village-level entrepreneurs**.
- TPRMG would supply rural areas with **reliable, quality, affordable, clean energy**, such as solar, wind and biogas.
- SIDBI would **help organise finance options** for developing businesses in the rural areas through its **PRAYAAS scheme**.
- This will also help in the **development of the associated ecosystem**.
- **Cost Economy:** The cost of energy generation using mini-grids is relatively high in India and TPRMG tackles the issue with **innovative technologies** such as **Group Smart Meter** for customers (patented technology of TPRMG).
- Since most customers don't use the electricity supply for their own consumption; the microgrid is **used for farming the neighbouring land too. This helps their income and the benefit reaches other farmers as well**.
- TATA Power microgrids have so far proved beneficial to **shops, healthcare facilities, flour mills, bulk milk chillers, RO cold water systems, schools, colleges and banks**, among many others paving the way for sustainable energy in rural areas.

- TPRMG gave a good opportunity for families involved in reverse migration due to COVID-19 pandemic to pursue rural entrepreneurship through microfinancing measures and paved the way to a sustainable economy for all.

About Bio-methane generators:

- **Biogas** is produced when organic matter is broken down in an anaerobic environment. Bio-methane generators **use the waste from sugar mills** to generate electricity.
- **Benefits:** reduction in energy costs, eco-friendly use of waste, lower installation costs, lower greenhouse gas emissions, lower amounts of waste going to landfills and production of natural fertiliser.
- **Economy:** Biofuel-based generators are **cheaper than diesel** generators. However, they are **more expensive** compared to the **solar** microgrid. This is due to the **maintenance cost** of the plant as well as the sourcing of **raw materials** for the plant.
- The only **disadvantage of solar-based generation** is that it can be tapped only during the **daytime**, which necessitates the requirement of the **storage** system.

PRAYAAS scheme of SIDBI:

- It is an **app-based**, end to end **digital lending platform**.
- **Aim:** To facilitate loans and low-cost capital to **aspiring entrepreneur from the bottom of the pyramid** and **livelihood entrepreneurs**, thereby improving their viability.
- It is being implemented in **partnership model** in different geographies and segments such as it has onboarded **BigBasket** to offer loans.
- As on 31 March 2020, it has assisted 14000 micro borrowers with an aggregate sanction of Rs. 161 cr.
- **Women and rural** beneficiaries constitute **74% and 88%** respectively of total beneficiaries



SOCIAL ISSUES



Abortion Rights

Context: In a significant ruling on reproductive rights, the **Supreme Court** extended the **right to safe and legal abortion up to 24 weeks of pregnancy** to unmarried and single women, saying it is the “**right of every woman** to make reproductive choices without undue interference from the State”.

- The bench was ruling on a plea by an **unmarried pregnant woman** who had been in a consensual relationship but was denied the right to abortion because she was past the 20-week limit.
- **Medical Termination of Pregnancy (MTP) Act of 1971** was largely concerned with ‘**married women**’.
- However, the **2021** Statement of Objects and Reasons **does not make a distinction between married and unmarried women**. The provisions of the MTP Act 1971 cannot be interpreted to deny that right to **single woman** beyond 20 weeks of pregnancy.
- This artificial distinction between married and single women is **not constitutionally sustainable**. The benefits in law extend **equally** to both single and married women.

Arguments by the bench:

- The bench ruled **pregnancy is the sole prerogative of a woman** and the circumstances are **unique** and may vary for each with regard to economic, cultural or social factors.
- If the benefits extended only to married women, it would perpetuate the **stereotype** and socially held notion **that only married women indulge in sexual intercourse**, and that consequently, the benefits in law ought to extend only to them.
- **Right to decisional autonomy** means women choosing the course of their lives. Unwanted pregnancies may have **cascading effects** for the rest of her life by **interrupting her education, her career, or affecting her mental well-being**.
- Right to **Reproductive autonomy** requires that every pregnant woman has the intrinsic right to choose to undergo or not to undergo abortion without any consent or authorisation from a third party.
- **Right to bodily autonomy** of the pregnant woman will ensure social justice.
- **Complicated life circumstances** play a part in decision of abortion which only the woman can choose on her own terms **without external interference or influence**.

Constitutionality:

- **Article 21** of the Constitution “recognises and protects the right of a woman to undergo termination of pregnancy if **her mental or physical health is at stake**.”
- **Article 51A** states to renounce practices derogatory to the **dignity of women**. Depriving **women** of autonomy not only over their bodies but also over their lives would be an affront to their **dignity**.

Medical Termination of Pregnancy Act, 1971

- An Act to provide for the termination of certain pregnancies by registered Medical Practitioners and for matters connected therewith or incidental thereto.
- It allowed abortion within 12 weeks of pregnancy requiring the opinion of one doctor and between 12 and **20 weeks** requires opinion of **two doctors**.
- The Bill sets up **State level Medical Boards** to decide if a pregnancy may be terminated after 24 weeks in cases of **substantial foetal abnormalities**.
- An **amendment in 2021** raised the ceiling for abortions to **24 weeks** for **special categories** of pregnant women such as rape survivors, minors, women with mental disabilities, women with foetuses that had major abnormalities and married women whose marital status had changed during the pregnancy, with the approval of two registered doctors.

Abortion laws around the world:

- Abortions are **illegal in 24 countries** –where about **90 million** or 5 per cent of women of reproductive age reside.
- Some of these include **Senegal, Mauritania, Egypt, Laos, Philippines, Honduras and Poland**. In **El Salvador**, women undergoing abortions have been found **guilty of “aggravated homicide”**, including miscarriages.
- **US**: Supreme Court has overturned the landmark 1973 Roe v Wade decision that established a constitutional right to an abortion. Henceforth, US has **severely restricted** access to the procedure.
- **Canada**: The court ruled that the restriction to abortion law violated a woman’s **right to “life, liberty and security of the person”** that was enshrined in Canada’s Charter of Rights and Freedoms.
- Most European countries permit abortions within gestational time limits, which most commonly is about 12-14 weeks. In the **UK**, pregnancy can be terminated right up until birth in cases of foetal disability.
- **New Zealand** decriminalised abortions in 2020, extending the legal period to 20 weeks of pregnancy
- In **2021**, in **Colombia**, the Constitutional court voted to **legalise abortion** before **24 weeks** of pregnancy as a result of efforts from human rights and civil society groups.

Way forward:

- **Law must not remain static** and its interpretation should keep in mind the **changing social context** and advance the cause of **social justice**. The interpretation of the **MTP Act** and Rules must evolve and consider the **social realities of today**.
- **Transformative constitutionalism** promotes and engenders societal change by ensuring that every individual is capable of enjoying the life and liberties guaranteed under the Constitution
- The law must remain cognizant of the fact that **changes in society have ushered in significant changes in family structures**.

A Brief History of LGBT Rights and Laws in India

Context: People of a different sexual orientation or gender identity often narrate harrowing tales of bullying, discrimination, stigma and ostracisation. In this context, the recent directive by National Medical Commission (NMC) to all State Medical Councils, banning conversion therapy and calling it a “professional misconduct” is a welcome step.

What is conversion therapy?

- Also known as reparative therapy, it is an intervention aimed at changing the sexual orientation or gender identity of an individual.
- Members of the lesbian, gay, bisexual, transgender, queer, intersex, asexual or of any other orientation are often subjected to conversion or ‘reparative’ therapy, particularly when they are young, to change their sexual orientation or gender identity by force.

NMC was following a Madras High Court directive to issue an official notification listing conversion therapy as a wrong, under the Indian Medical Council (Professional Conduct, Etiquettes and Ethics) Regulations, 2002.

What are the Key Highlights of Madras High Court Verdict that lead to the ban?

On June 7, 2021, Justice N. Anand Venkatesh of the Madras High Court gave a landmark ruling on a case he was hearing about the ordeal of a same-sex couple who sought police protection from their parents.

- **Ban Order:** The ruling prohibited any attempt to medically “cure” or change the sexual orientation of LGBTQIA+ people. It urged the authorities to act against **“professionals involving themselves in any form or method of conversion therapy,”** which could include the withdrawal of licence to practice medicine.
- **Right to Life:** Justice Venkatesh issued a slew of interim guidelines for the police, activists, Union and State Social Welfare Ministries, and the National Medical Commission to **“ensure their safety and security to lead a life chosen by them.”**
- **Close Pending Cases:** The Madras High Court directed the police, for example, to close complaints of missing persons’ cases, “without subjecting them to harassment”, if it found on investigation that the parties were consenting adults belonging to the LGBTQIA+ community.
- **List of NGOs:** The court asked the Ministry of Social Justice & Empowerment to draw up a list of NGOs and other groups which could handle the issues faced by the community,
- **Legal Assistance:** The court said the community should be provided with legal assistance by the District Legal Services Authority in coordination with law enforcement agencies.

- **Sensitization:** Asking agencies to follow the Transgender Persons (Protection of Rights) Act, 2019, in letter and spirit, the court said it was imperative to hold sensitisation programmes for an all-out effort to understand the community and its needs.

If the Supreme Court's decriminalising of homosexuality in 2018 by striking down Section 377 of the Indian Penal Code was a first step, the NMC's notice is also a small move towards inclusivity.

- In **Navtej Singh Johar vs Union of India case of 2018**, five-judge bench read down parts of Section 377 of the Indian Penal Code (IPC) and allowed LGBT individuals to engage in consensual intercourse without fear of imprisonment.
- But this wasn't always the case. Just 30 years before this, the same India that now allows people to take lovers of the same sex, was an India that persecuted openly gay people.
- So, how did the country make this transition? What changed from 1861 to 2018?

What was the situation in Ancient & Medieval India vis-à-vis homosexuality?

- Before the imposition of colonial-era laws under British rule, India had its own texts, which detailed the practice of homosexuality and same-sex intercourse.
- As far back as 400 BC, the *Kama Sutra*, said to be written by Indian philosopher Vatsyayana, describes homosexual acts in detail, including explicit instructions on how to perform such acts.
- Meanwhile, in South India, the oldest of Tamil texts, Tamil Sangam literature from 3 BC to 4 AD, included descriptions of man-on-man relationships and relationships between transgender people.
- Other ancient texts like the Arthashastra, Nardasmriti, and Sushruta Samhita also mention different types of same-sex relationships.
- But as much as some myths and ancient texts detailed, and even instructed, on LGBT relationships, other texts like the Manusmriti derided the same.
 - The Manusmriti, for example, detailed punishments like shaving the head of a woman or cutting off her fingers, as punishment for engaging in lesbian intercourse.
- Apart from the texts, the walls of ancient architecture are the second source of information about ancient India's thoughts on sexuality. For example, the **temples of Khajuraho**, depict same-sex relationships and bisexual relationships, as well as other acts of what was till a while ago termed "unnatural intercourse."
- However, in India during Mughal rule, "unnatural intercourse" was prohibited under the Fatawa' Alamgiri, a unified code of guidance based on Sharia law. It included punishments such as lashings for engaging in homosexual intercourse.

How was homosexuality and LGBT rights dealt in pre-Independence era?

- The first codified legislation on homosexuality in India was **Section 377 of the IPC**. The section that dealt with Unnatural offences stated that Whoever voluntarily has carnal intercourse against the order of nature with any man, woman or animal, shall be punished up to ten years, and shall also be liable to fine.
- The text of Section 377 of the IPC remained deliberately vague to be applied on a case-by-case basis to any "carnal relationships against the natural order". This extends to gay, lesbian, bisexual, and trans relationships, as well as acts like bestiality and sodomy.

What was the situation post-Independence?

- After Independence and Partition, both India and Pakistan adopted their respective versions of the original IPC as the Indian Penal Code and the Pakistan Penal Code.
- Section 377 continued to stay in effect and members of the LGBT community faced persecution and ostracism in many forms.
 - For example, in 1987, police officers Leela and Urmila from Madhya Pradesh's Bhopal were sacked as law enforcement authorities after getting "married" and coming out as a lesbian couple.
- It was in 2001 that the Naz Foundation, an NGO that works with HIV+ patients and sexual health, filed a Public Interest Litigation (PIL) challenging the clause as violative of the fundamental right against discrimination enshrined in the Constitution of India.
- In 2009, the Delhi High Court, in **Naz Foundation vs NCT of Delhi**, ruled that **Section 377 was unconstitutional**, and struck the law down. The judgement thus decriminalised homosexuality in India for the first time.

- In 2013, in **Suresh Koushal and Anr vs Naz Foundation and Others**, the SC reversed the Delhi HC's decision stating that "it was up to the Centre to legislate on the issue." Thus, section 377 was back in statute books that criminalised homosexuality.
- This decision would lead to protests across the country, with the **Aam Aadmi Party, the Indian National Congress, and the Communist Party of India (Marxist)**, making the decriminalisation of homosexuality a part of their election manifesto in the 2014 general Assembly elections.
- In 2018, a five-judge SC bench passed a historic order. The verdict came in a petition by Indian choreographer **Navtej Singh Johar** and 11 others challenging the constitutional validity of Section 377. The SC read down the provisions of the clause inasmuch as they pertain to consensual same-sex relationships.
- The change in law was welcomed by the LGBT community, and hailed as a victory for LGBT and human rights.

Given the recent NMC ban on conversion therapy, what more needs to be done?

- **Penal Provisions:** Taking cue from countries such as Canada, which has banned conversion therapy, there should be clarity on what action will be taken against quacks, psychiatrists and doctors accused of offering reparative treatment and the punishment they will face.
- **Changes in curricula:** Medical textbooks prescribed in 2018 still consider lesbianism a "perversion", an act of "mental degenerates". Thus, change needs to start in educational institutions.
- **Gender-neutral Infrastructure:** Gender-neutral restrooms should be compulsory in educational institutes and other places.
- **Sensitisation of Parents:** The first point of misunderstanding and abuse often begins at home, with teenagers being forced to opt for "conversion" therapies, thus necessitating sensitisation of Parents.
- **Societal Changes:** Indian institutions and society will have to acknowledge the "variability of human beings" and accord equal respect to everyone, whatever the sexual orientation or gender identity.
- **Legal Modifications:** The changes in societal level has to be complemented by laws better tuned to the needs of a diverse community than the Transgender Persons (Protection of Rights) Act, 2019, has sought to do.

Sanskritization

Context: Sanskritisation was a term coined and popularised by M.N. Srinivas, an eminent social anthropologist in his book *Religion and Society Among the Coorgs of South India* (1952) to describe the **cultural mobility** in the traditional caste structure of Indian society.

What is the meaning of Sanskritisation?

- M N Srinivas writes, "Sanskritization is a process by which a lower caste or tribe or any other group changes its customs, rituals, ideology and way of life in the direction of a higher caste."
 - Examples include wearing of sacred thread, denying the use of meat and liquor, observing endogamy, prohibition of widow remarriage etc
- To explain this process of mobility, Srinivas used the term 'Brahminization'. Later on, he called it 'Sanskritization' in a broad sense.
- The concept of Sanskritization has also given rise to De-Sanskritization. There are some instances in modern times, some of the higher castes are imitating the behaviour pattern of "lower" caste, and for example Brahmins have started taking meat and liquor. This process is called De- Sanskritization.

Did Sanskritisation lead to social mobility?

- M N Srinivas also warned that the process itself did not always result in higher social status for such castes.
- Other factors such as economic well-being, political power, education, and establishment of literary/historical evidence for their affiliation to/descent from a particular caste lineage were also important for their aspirations for higher social positions
- Most importantly, for the Dalits, Sanskritisation did not guarantee higher social stature and did not lead to improvement in their everyday life. This showed how the caste system continued to be particularly exclusionary for the Dalits, and efforts to raise their social status were opposed and stopped by castes ranked above them.

What are the hindrances of Sanskritisation?

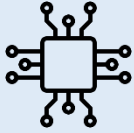
- The very fact that it takes decades and decades for a caste to raise its status is indicative of the **slowness of the process** and slowness is an indication of the opposition.
- The most important factor in the hindrance for the process is the **resentment of other castes** against any caste that tries to raise its status. Often political and economic pressures are put. At times even physical force is used to prevent the lower castes' taking on the customs and the rituals of higher castes.
- Another factor that hinders the process of Sanskritisation is westernization. Westernisation may be characterised as a movement from the sacred to the secular.
- As both the processes of **Sanskritisation and westernisation** are going on at the same time, there is a conflicting, or more correctly, a confusing situation. Most of the castes are faced with a dilemma of making a choice.
- On the one hand, there are the lower castes trying to take on the traditional values and customs of the upper castes, to raise their status. On the other hand, the upper castes are discarding some of these customs.
- With increased industrialisation, greater communication, new occupations, greater education, it seems likely that westernisation will be the more dominant process.

What are some of the criticism of Sanskritisation theory?

Reinforces Hierarchy; Even when Sanskritisation allows for social mobility through elevation to a relatively higher position in the caste hierarchy, it only modifies the rank/position of communities in the caste hierarchy and reinforces graded inequalities and practices in the name of caste, while not offering a strong critique and denunciation of the caste system as a whole.

Blunts Anti-Caste Struggle: To understand caste relations through Sanskritisation alone is to ignore the role of the anti-caste struggles which did not follow the cultural-ritual trajectory of Sanskritisation. These anti-caste struggles aimed at not imitating or adapting the supposedly 'superior' socio-cultural values of the higher castes — values and practices that are casteist, discriminatory and exploitative.

Instead, these anti-caste struggles are aimed at destroying the very structure of caste and instituting a casteless, caste-free society.



SCIENCE & TECHNOLOGY



Case study:

- **Gender issues**, particularly **gender inequality and discrimination in academia** relating to **higher education**, perhaps came under the **spotlight for the first time in India in 1937** when **Professor D.M. Bose**, then **Professor of physics at Calcutta University**, was reluctant to include **Bibha Chowdhuri** in his research group on the ground that he did not have suitable research projects to assign to women. Chowdhuri was unfazed and had her way. She joined Bose's research group. Her work on cosmic rays in determining the mass of mesons is legendary.

The general bias against women which arose out of suspected capability of their intelligence and their mettle in undertaking the arduous task of research was quite common in the 20th century.

What is Glass Ceiling?

- It refers to an **invisible barrier that stops the rise of women (or any other disadvantaged/ marginalised group)** from reaching **top positions of an organisation, polity, or society**.
- The concept originated in **corporate management sphere** where it was defined as the '**artificial barriers based on attitudinal or organizational bias that prevent qualified individuals from advancing upward in their organization into management level positions**'.

Glass ceiling in the corporate world:

- On the contrary, **participation of women in leadership and decision-making positions in private enterprises (the corporate sector)** is startling when compared to the reality in academics.
- The number of women in **senior management positions in the corporate sector in India is 39%**, which is higher than the global average.
- **Number of women CEOs in Fortune 500 companies is 15%** while female board members in the **management of private enterprises have been growing from 15% in 2016 to 19.7% in 2022**. If this trend continues, near **parity will be reached by 2045**, according to a forecast made by Deloitte.
- Second, **encouraging the participation of women in the workforce in the private sector with the adoption of various schemes for women** began long ago when compared to the **initiatives taken by the Government of India in recent years**.

Causes for under-participation of women in STEM:

- **Stereotypes**: stereotypical gender roles like women work as housewives.
- **Patriarchal and Societal Causes**: biased attitudes in hiring practices or awarding fellowships and grants etc.
- **Stressors related to marriage and childbirth**, pressures to conform to societal norms and trappings of domesticity – responsibility related to running of households and elder care further hinder the representation of women in these non-conventional fields.
- **Lack of Role Models**: Organisational factors have also played a big role in preventing gender parity. Lack of women leaders and women role models may be preventing more women from entering these fields.
- **Absence of Supportive Institutional Structure**: Women leave the workforce, due to the absence of supportive institutional structures during pregnancy, safety issues in fieldwork and workplace.
- **Poor education and healthcare access are responsible** for a lesser number of women in these fields.

Government's incentives:

- **Gender Advancement for Transforming Institutions (GATI)**: a pilot project under the **Department of Science and Technology** to promote **gender equity in science and technology**

- **Knowledge Involvement in Research Advancement through Nurturing (KIRAN)**- a plan under the **Department of Science and Technology** again to encourage **women scientists in science and technology** and also **preventing women scientists** from giving up research due to family reasons, are noteworthy.
- **One of the programmes under KIRAN called 'Women Scientist Scheme'** — provides career opportunities to unemployed women scientists and technologists, especially those who had a break in their career.
- **Indo-US Fellowship for Women in STEMM (WISTEMM) program**– Under this bilateral agreement, Indian women scientists can now work in **research labs in the US**.
- **Consolidation of University Research for Innovation and Excellence in Women Universities (CURIE) programme**– It aims at improving R&D infrastructure and establishing state-of-the-art research facilities in order to create excellence in S&T in women universities.
- **Vigyan Jyoti programme**– **Meritorious girl students of Class 9-12** are being encouraged to pursue higher education and career in the STEM field.

However, despite all these endeavours, there is still **a gender bias that persists** and which **has not been removed fully**. Women are still an under-represented population globally in **hardcore science, technology, engineering, and mathematics (STEM)**.

Way forward:

- **Role of Science Academies:** Science academies have to reflect upon their role and contributions to promote and retain women in science, thereby making science inclusive and sensitive.
- **Bringing Behavioural Changes:** Subdued gender participation emanates from social-economic issues, which can be treated by bringing behavioural change. This can be changed if more women are given leadership positions.
- **Breaking the glass ceiling systemically:** Remove the sexism and institutional obstacles that prevent more women from entering the scientific field.
- **Affirmative action:** government can examine having a policy of reservation of seats for women in all research institutions, higher education universities, laboratories, and STEM organisations.

It is hoped the programmes that have been initiated by the Government to empower women in the workforce will **usher in gender parity by 2047**, which would mark the **centenary of India's Independence- a true 'Azadi Ka Amrit Mahotsav'**.



PRACTICE QUESTIONS



Q.1) With reference to 'The National Policy on Narcotic Drugs and Psychotropic Substances', which of the following statements is/are correct?

1. It is based on the Directive Principles, contained in Article 49 of the Indian Constitution.
2. India is a signatory to the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988.
3. Narcotics Control Bureau is the nodal drug law enforcement and intelligence agency of India responsible for fighting drug trafficking and the abuse of illegal substance.

Select the correct answer using the codes given below.

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

Q.2) Consider the following pairs:

Places in news and its location

1. Solomon Islands – North Pacific Ocean
2. Zaporizhzhia Nuclear power plant – Ukraine
3. Ambarnaya River – Japan
4. Mount Nyiragongo – Philippines

How many pair/pairs given above are correctly matched?

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

Q.3) In the 'Index of Eight Core Industries', which one of the following is given the highest weight?

- a. Refinery Products
- b. Natural Gas
- c. Crude Oil
- d. Steel

Q.4) Consider the following Government of India Schemes:

1. GATI
2. KIRAN
3. WISTEMM
4. CURIE

Which of the above are launched for the benefit of women?

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

Q.5) Consider the following statements:

1. Large sea surface with temperature higher than 27° C
2. Absence of the Coriolis force
3. Small variations in the vertical wind speed

Which of the above conditions are favorable for the formation of Tropical Cyclones?

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

Q.6) Durg-Bastar-Chandrapur belt and Ballari-Chitradurga-Chikkamagaluru-Tumakuru belt in India is famous for?

- a. Iron ore reserves
- b. Uranium reserves
- c. Gold reserves
- d. Coal reserves

Q.7) Consider the following statements about Cri-MAC Portal

1. Cri-MAC was launched in 2020 by the Ministry of Home Affairs (MHA).
2. The application is run by the National Crime Records Bureau (NCRB).

3. It aims to share information on crime and criminals 24x7 with various law enforcement agencies and ensure a seamless flow of information among them.

Choose the correct statements:

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

Q.8) Consider the following statements about Narcotic Drugs and Psychotropic Substances (NDPS) Act

1. All the offences under the NDPS Act are non-bailable.
2. The bail provision requires the court to have "reasonable grounds" to believe that the accused is not guilty.
3. No relief can be sought by the drug convicts by termination, remission, and commutation of sentences passed.

Choose the incorrect statements:

- a. 1 only
- b. 3 only
- c. 1 and 3
- d. None

Q.9) Consider the following statements about cervical cancer

1. All cervical cancer cases are linked to certain strains of human papillomavirus (HPV), which is transmitted through sexual contact.
2. The body's immune system usually gets rid of the HPV infection naturally within two years.
3. Cervavac is India's first indigenously developed Quadrivalent Human Papillomavirus vaccine (qHPV), against cervical cancer.

Choose the correct statements:

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

Q.10) Which of the following statement(s) regarding nano urea is/are correct?

1. It is liquid urea in the form of a nanoparticle.
2. It is developed by Indian Agricultural Research Institute (IARI), commonly known as the Pusa Institute.
3. Its efficacy is more than 80 per cent, whereas the conventional urea efficacy is only 30 per cent to 40 percent.

Select the correct option using the code given below:

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

Q.11) Which of the following is/are initiative of government to promote the sustainable agriculture:

1. Paramparagat Krishi Vikas Yojana (PKVY) :
2. Rashtriya Krishi Vikas Yojana:
3. MOVCDNER

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.12) Hanle region, recently seen in news is located in?

- a. Sikkim
- b. Jammu & Kashmir
- c. Ladakh
- d. Arunachal Pradesh

Q.13) Consider the following literary works:

1. Tholkappiam
2. Meyyaram
3. Meyyarivu

The above mentioned are related to which of the following freedom fighter?

- a. Gazulu Lakshmi Narasu Chetty
- b. Tiruppur Kumaran
- c. Dheeran Chinnamalai
- d. O. Chidambaram Pillai

Q.14) What is the purpose of "PM ScHools for Rising India (PM SHRI) ?

1. It is a centrally sector scheme.
2. PM SHRI Schools will showcase all components of the National Education Policy 2020.

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.15) Which Article of the Constitution of India protects people who have been arrested or detained?

- a. Article 21
- b. Article 16
- c. Article 22
- d. Article 24

Q.16) The Ramon Magsaysay Award is named after the former President of which country?

- a. Malaysia
- b. Thailand
- c. Philippines
- d. Taiwan

Q.17) Consider the following statements about the Central Drugs Standard Control Organisation (CDSCO):

1. It is under the department of Health Research of Ministry of Health and Family Welfare
2. It derives its power from the Drugs and Cosmetics Act.
3. It is responsible for approval of licenses of vaccine and its emergency use.

Select the correct answer using the code given below:

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

Q.18) With reference to the Agreement at the UNFCCC Meeting in Paris in 2015, which of the following statements is/are correct?

1. The Agreement aims to limit the greenhouse gas emissions so that the rise in average global temperature by the end of this century does not exceed 2°C.

2. Developed countries acknowledged their historical responsibility in global warming and committed to donate \$ 1000 billion a year from 2020 to help developing countries to cope with climate change.

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.19) With reference to 'Emergency Credit Line Guarantee Scheme' which of the following statements is/ are correct?

1. It aims to facilitate collateral-free loans to different economic sectors for which 100% guarantee coverage is provided to Member Lending Institutions (MLIS) by government.
2. All Schedules commercial banks are recognised as MLI to disperse the loans.
3. It provides the pre-approved loan for which an 'opt-out' option will be provided to eligible borrowers under the Scheme.

Which of the statements given above is/are correct?

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

Q.20) Consider the following activities:

1. Spraying pesticides in a crop field
2. Inspecting the craters of active volcanoes
3. Collecting breath samples from spouting whales for DNA analysis

At the present level of technology, which of the above activities can be successfully carried out by using drones?

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

Q.21) Kushiyara River, recently in news is a tributary of which of the following river?

- Ganga
- Teesta
- Brahmaputra
- Barak

- Bengaluru – Arkavathi
- Kolkata – Hooghly

How many pairs given is/are correctly matched?

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

Q.22) Consider the following statements

- WEST programme is an initiative of I-STEM that provides a separate platform to women researcher and scientists.
- I-STEM, national web portal for sharing Research and Development facilities is an initiative of Department of Science and Technology.

Choose the correct statements:

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

Q.23) Consider the following statements

- Hot Springs is east of the Chang Chenmo River.
- Chang Chenmo River is a tributary of the Shyok River.
- Kongka Pass is a low mountain pass over a hill in Arunachal Pradesh – Myanmar boundary.

Choose the incorrect statements:

- 1, 2 and 3
- 2 and 3
- 1 and 3
- 1 and 2

Q.24) Which of the following gives the 'Human Development Index' ranking to the countries of the world?

- World Economic Forum
- United Nations Environmental Programme
- United Nations Development Programme
- World Bank

Q.25) Consider the following pairs:

City and River

- Hyderabad – Musi
- Delhi – Yamuna

Q.26) Consider the following statements regarding National Ambient Air Quality Standards (NAAQSs):

- NAAQSs standards for ambient air quality set by the Central Pollution Control Board (CPCB).
- NAAQSs contain 10 pollutants.

Which of statements given above is/are correct?

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

Q.27) Consider the following statements about Dara Shikoh

- He is known as a pioneer of the academic movement for interfaith understanding in India.
- His important works include Majma-ul-Bahrain and Sirr-i-Akbar to the cause of establishing connections between Hinduism and Islam.

Choose the correct statements:

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

Q.28) With reference to India, Nyukmadong, Gyandrabangsa, Halftangmu, and Penpeytang are the names of

- Tribal hamlets
- Glaciers
- Community reserve forests
- Tribal languages

Q.29) Consider the following statements

1. Tax avoidance refers to the illegal means of avoiding net tax liability by way of fraudulent financial statements and falsification of accounts
2. Tax evasion attracts heavy fines and penalties.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both
- d. Neither

Q.30) Consider the following statements

1. Kushiara river is a distributary of the Brahmaputra River
2. It flows through southern Assam and Sylhet in Bangladesh.
3. India shares the longest land boundary with Bangladesh followed by China
4. Teesta river is a tributary of Brahmaputra River which flows through Assam and Bangladesh

Which of the statements given above is/are correct?

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

Q.31) Consider the following statements

1. Hoysala temples are in the form of Panchayatan style.
2. Chennakeshava temple is located at Belur, Karnataka.
3. Jagati is an architectural element that represents the tall tower.

Which of the statements given above is/are correct?

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

Q.32) Consider the following statements about Vembanad Lake

1. It is the longest lake in India.

2. It is the second-largest Ramsar site in India only after the Sundarbans in West Bengal.
3. The Kumarakom Bird Sanctuary is located on the east coast of the lake.

Choose the correct statements:

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

Q.33) Who among the following chosen by Mahatma Gandhi to be the first individual satyagrahi against British rule in 1940?

- a. Jawaharlal Nehru
- b. Subhash Chandra Bose
- c. Sarojini Naidu
- d. Vinoba Bhave

Q.34) With reference to the "Rubber Board" in India, consider the following statements:

1. The Rubber Board is a statutory body.
2. It is a regulatory body attached to the Ministry of Agriculture and Farmers Welfare.
3. The Rubber Board's Head Office is situated in Alappuzha, Kerala.

Which of the statements given above is/are correct?

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

Q.35) Nagorno-Karabakh is a disputed region between?

- a. Sudan-South Sudan
- b. Sudan-Ethiopia
- c. Azerbaijan-Armenia
- d. Russia-Ukraine

Q.36) Consider the following statements

1. NASA's DART mission is scheduled to crash into Didymos.
2. LICIAcube is a CubeSat developed by NASA

Which of the statements given above is/are correct?

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

Q.37) With reference to India, the terms 'Kurivikkaran, Hatti, and Binjhia' pertain to?

- Merchant guilds
- Scheduled Tribes
- Scheduled Castes
- None of the above

Q.38) Consider the following statements regarding National Social Assistance Programme:

- It is a central sector programme.
- It is administered by Ministry of Social Justice and Empowerment.
- It provides financial assistance to the elderly, widows, and persons with disabilities in the form of social pensions.
- Only BPL persons are eligible for it.

Which of the statements given above are correct?

- 1 and 2 only
- 2 and 3 only
- 3 and 4 only
- 1 and 4 only

Q.39) Consider the following statements about Manasbal Lake

- It's a freshwater lake in Ladakh.
- Lake water outflows to the Jhelum River through a regulated outflow channel.

Choose the correct statements:

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

Q.40) With reference to the " Eastern Economic Forum ", consider the following statements:

- It is an initiative endorsed by the G20 together with Russia.
- It is an initiative to support Low Income Eastern Economies in the field of infrastructure.

- It primarily focuses on the Far Eastern region of Russia.

Which of the statements given above is/are correct?

- 1 only
- 2 and 3 only
- 1, 2 and 3
- 3 only

Q.41) Which of the following nations parks are located in Madhya Pradesh?

- Kuno National Park
- Kanha National Park
- Pench National Park
- Tadoba-Andhari National Park

Select the correct answer using the code given below:

- 1, 2 and 3 only
- 1 and 3 only
- 2 and 4 only
- 1, 2, 3 and 4

Q.42) R21/Matrix-M vaccine, which is recently in news, is related to

- Dengue
- Malaria
- Tuberculosis
- Hepatitis B

Q.43) With reference to Indian history, Erode Venkatappa Ramasamy/Periyar associated with which of the following:

- Self-respect movement
- Vaikom satyagraha
- Dravidar Kazhagam
- Justice Party

Select the correct option using the code given below:

- 1, 2 and 3 only
- 2, 3 and 4 only
- 1, 2 and 4 only
- 1, 2, 3 and 4

Q.44) World Population Prospects (WPP) is a report published by

- United Nations Educational, Scientific and Cultural Organization (UNESCO)
- UN Population Division
- United Nations Statistics Division
- Population Council (NGO)

Q.45) Consider the following statements, with respect to Asiatic Lion

- Asiatic lion is categorized as Critically Endangered in the IUCN Red List.
- There is significant rise in population of Asiatic lions in last five years.
- Gir forest in Gujarat is the only natural habitat of the Asiatic lion.

Which of the statements given above is/are correct ?

- 1 only
- 1 and 3 only
- 2 and 3 only
- 1, 2 and 3

Q.46) In which one of the following groups are all the four countries members of ASEAN?

- Malaysia, Myanmar, the Philippines, and Singapore
- Brunei, Cambodia, Indonesia, and India
- Singapore, Thailand, Bangladesh, and Vietnam
- Indonesia, Laos, Malaysia, and Papua New Guinea

Q.47) Application of semiconductors involves in which of the following digital consumer products:

- Mobile phones / Smartphones
- Televisions
- Washing machines
- Digital cameras
- Refrigerators
- LED bulbs

Select the correct answer using the code given below:

- 1, 3, 5, and 6 only
- 1, 2, 4, 5 and 6 only
- 2, 3, 5, 4, and 5 only
- 1, 2, 3, 4, 5, and 6

Q.48) In India, which one of the following is responsible for maintaining price stability by controlling inflation?

- Department of Consumer Affairs
- Expenditure Management Commission
- Financial Stability and Development Council
- Reserve Bank of India

Q.49) Consider the following statements:

- The power of Judicial Review has been defined in the Constitution.
- The legislature has full powers to amend all the Fundamental Rights of individuals.
- As per the Supreme Court, every constitutional amendment has to be judged on its own merits.

Which of the statements given above is/are correct?

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

Q.50) With reference to Pradhan Mantri Garib Kalyan Package (PMGKP), consider the following statements:

- It was announced in March 2020 during the covid-19 pandemic.
- It, among other things will also provide insurance cover to health workers.
- It aims to provide employment to the poor in rural areas.

Which of the statements given above is/are correct?

- 1 and 3 only
- 2 only
- 1 and 2 only
- 1, 2, and 3

Q.51) Consider the following statements regarding Central Bureau of Investigation (CBI) in India:

- The Santhanam Committee recommended for the establishment of the CBI.
- CBI Director is appointed by the committee which is headed by the Home Minister.

Which of the statements given above is/are correct?

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

Q.52) With reference to the “Prompt Corrective Action Framework”, consider the following statements:

1. The framework is based on parameters such as Capital, Profitability and Asset Quality.
2. The objective of the framework is to enable Supervisory intervention at appropriate time
3. The framework applies to Indian banks only.

Which of the statements given above is/are correct?

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

Q.53) Consider the following statements:

1. The Directorate of Enforcement is entrusted with implementation of Prevention of Money Laundering Act, 2002.
2. It is part of the Department of Economic Affairs, 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.54) Consider the following statements about ‘Pusa bio-decomposer’:

1. It is a bacteria-based formulation
2. It converts crop stubble into bio-manure

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.55) In the context of Indian economy, Shrinkflation refers to

- a. A combination of slow growth, high unemployment, and rising prices in an economy.
- b. An economy undergoing stagnated growth and inflation

- c. Shrinking (reducing) levels of inflation
- d. Package downsizing while keeping price of a consumer good the same

Q.56) Consider the following statements regarding the Criminal Procedure (Identification) Rules, 2022:

1. The rules explicitly prevent the use of facial recognition technology while allowing the collection of biological samples like fingerprint.
2. The rules lay down procedure for police and central investigating agencies to collect, store and analyse physical and biological samples including retina and iris scans of arrested persons.

Which of the statements given above is/are correct?

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

Q.57) With reference to Asian Development Bank (ADB), consider the following statements:

1. ADB has more than 60 member countries.
2. India is the largest shareholder in ADB.
3. ADB is headquartered in Shanghai, China.

Which of the statements given above is / are correct?

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

Q.58) Which one of the following is the context in which the term “LoRa (Long Range Radio) technology” is mentioned:

- a. Banking services
- b. Wireless Local Area Network
- c. GPS navigation systems
- d. DNA Barcoding

Q.59) Consider the following statements in respect of the Indian Olympics Association (IOA):

1. It was founded in 1956.
2. It plays with the name of “Team Bharat”.

Which of the above statements is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 and 2

Q.60) Consider the following statements, with respect to PM CARE Fund:

- Home minister is ex-officio chairman of Board of trustee of fund.
- The fund consists entirely of voluntary contributions from individuals and organizations and does not get any budgetary support.
- It is audited by the Comptroller and Auditor General of India in every financial year

Which of the statements given above are correct?

- 1, 2 and 3
- 2 and 3 only
- 2 only
- 1 and 2 only

Q.61) Which of the following statement(s) is/are correct regarding rabies?

- It is a zoonotic viral disease.
- Rabies is 100% fatal but 100% vaccine-preventable.
- One third of global rabies deaths are recorded in India.

Select the correct option using the code given below:

- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1, 2 and 3

Q.62) The term 'Carbon dating' often mentioned in news related to :

- a process of treatment of diseases in animals.
- a process to determine the age of archaeological samples.
- a medicine for the treatment of cancer.
- a process to determine the age of a meteorite.

Q.63) Consider the following statements, with reference the BrahMos missile:

- It is a ramjet supersonic cruise missile
- The missile functions on the Fire and Forget principle with high accuracy.

Select the correct answer using the code given below:

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

Q.64) Which of the following is not a Dragonfly?

- Spiny horntail
- Golden dartlet
- Spoonbill
- Ditch jewel

Q.65) Consider the following statements about the Flex-Fuel Vehicles:

- They can operate on a mixture of flex fuel.
- They have two separate fuel system to mix the fuel for combustion.

Select the correct answer using the code given below:

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

Q.66) Consider the following statements, with respect to Banking system liquidity:

- It refers to readily available cash that banks need to meet long-term business and financial needs
- Cash in banking system turns deficit for the first time in over three years.

Which of the statements given above is/are correct?

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

Q.67) Which one of the following issues the 'The Breakthrough Agenda Report 2022' report periodically?

- International Atomic Energy Agency
- The World Bank
- International Energy Agency
- International Union for Conservation of Nature

Q.68) Consider the following statements in respect of the Asian Palm Oil Alliance (APOA):

- It is an edible oil trade association formed of palm oil importing countries.
- It was formed in the year 2020.

Which of the above statements is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 and 2

Q.69) In which of the following areas can GPS technology be used?

- Mobile phone operations
- Creating maps of the world
- Monitoring personal/Object movement

Select the correct answer using the code given below:

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

Q.70) In which one of the following states is Sessa Orchid sanctuary located?

- Assam
- Arunachal Pradesh
- Manipur
- Sikkim

Q.71) With reference to the Fund of Funds for Startups (FFS) scheme, which of the following statements are correct?

- FFS funds must be used to invest in eligible startups.

- A specified portion of each fund must benefit SC/ST populations.
- NABARD is responsible for operationalising the scheme.
- The scheme comes under the purview of Ministry of Commerce & Industry

Select the correct answer using the code given below:

- 1 and 2 only
- 3 and 4 only
- 1, 2 and 3 only
- 1 and 4 only

Q.72) Identify the art form with the following characteristics:

- it is a martial art practiced in the state of Kerala
- Practitioners of this art possess intricate knowledge of pressure points on the human body and healing techniques.

Which of the statements mentioned above is/are correct?

- Chavittunatakam
- Kathakali
- Kalaripayattu
- Mohiniyattam

Q.73) In the context of solving pollution problems, what is/are the advantage/advantages of bio-methane electricity generators?

- They use biological waste such as food crops to generate electricity using anaerobic respiration.
- They can be used to provide clean electricity in rural areas using microgrids.

Select the correct answer using the code given below:

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 and 2

Q.74) Consider the following statements:

1. He was one among the founders of the Hindustan Socialist Republican Association (HSRA)
2. He was involved in Lahore conspiracy case.
3. He declares his ideal as the "Social reconstruction on new, i.e., Marxist, basis.
4. His famous books include 'Why I am an Atheist', 'Letter to my father', and 'Jail Notebook'.

Identify the personality described in above statements using the code given below:

- a. Rajguru
- b. Sukhdev
- c. Lala Lajpat Rai
- d. Bhagat Singh

Q.75) Consider the following statements regarding Neelakurinji Blooms:

1. They are endemic to Western Ghats, covering the slopes of Kerala, Karnataka and Tamil Nadu.
2. They bloom once in 10 years.

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.76) With reference to Chief of Defence Staff (CDS), consider the following statements

1. The first proposal for a CDS came from the 2000 Kargil Review Committee (KRC).
2. He functions as the Permanent Chairman of the Chiefs of Staff Committee.
3. He functions as the Military Advisor to the Nuclear Command Authority.

Which of the above statements is/are correct ?

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

Q.77) Consider the following statements, with respect to Medical Termination of Pregnancy Act,

1. It allows abortion up to 22 weeks in exceptional situation.
2. Both married and unmarried women are allowed for termination of pregnancy under the act.

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.78) The floral festival called 'Bathukamma' is celebrated in which of the following states ?

- a. Andhra Pradesh
- b. Karnataka
- c. Telangana
- d. Tamil Nadu



KEY ANSWERS



| | | | | | | | |
|----|---|----|---|----|---|----|---|
| 1 | d | 21 | d | 41 | a | 61 | d |
| 2 | b | 22 | a | 42 | b | 62 | b |
| 3 | a | 23 | c | 43 | d | 63 | c |
| 4 | d | 24 | c | 44 | b | 64 | c |
| 5 | c | 25 | c | 45 | c | 65 | a |
| 6 | a | 26 | a | 46 | a | 66 | b |
| 7 | d | 27 | c | 47 | d | 67 | c |
| 8 | d | 28 | a | 48 | d | 68 | a |
| 9 | d | 29 | b | 49 | d | 69 | d |
| 10 | c | 30 | d | 50 | c | 70 | b |
| 11 | d | 31 | b | 51 | a | 71 | d |
| 12 | c | 32 | c | 52 | c | 72 | c |
| 13 | d | 33 | d | 53 | a | 73 | c |
| 14 | B | 34 | a | 54 | b | 74 | d |
| 15 | c | 35 | c | 55 | d | 75 | a |
| 16 | c | 36 | d | 56 | b | 76 | d |
| 17 | d | 37 | b | 57 | a | 77 | b |
| 18 | a | 38 | c | 58 | a | 78 | c |
| 19 | d | 39 | b | 59 | d | | |
| 20 | d | 40 | d | 60 | a | | |

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