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Current Affairs

Contents

Archaeologists, Sanskrit Scholars Collaborate to Decipher Rigveda text

Syllabus: GS1/Ancient History

Context

- A group of archeologists are now collaborating with Sanskrit scholars to decipher the text of the Rigveda.
- Researchers need to get more understanding about what is mentioned in Rigvedic text, and how much of that can be co-related with archaeological evidence.

About

- Aim: The research aims to potentially establish a relationship between the Harappan civilisation and the people of the Vedic age.
- A clear understanding of what is mentioned in the Rigveda text is important in order to co-relate archaeological evidence unearthed in excavations of Harappan settlements.

Correlating Evidences

- Worship Rituals: While excavating the site of Rakhigarhi, we found evidence of ritual platforms and fire altars. Parallely, fire worship is mentioned in Rigvedic texts.
- Age of Vedas: Currently, there is a debate about the period of origin of the Vedas, with one set of historians holding that the Vedas originated between 1,500 BC and 2,000 BC. However, another set of historians, believe that the Vedas date farther back to 2,500 BC — or 4,500 years ago.
- This would coincide with the age of the genetic evidence from the erstwhile Harappan woman's bone samples tested at the Rakhigarhi site.
- Saraswati River: The mention of the river is recorded at least 71 times in the Rigvedic text.
- During archaeological excavations, a majority of Harappan settlements were discovered along the banks of river Saraswati.
- Rigvedic texts do not mention the use of iron, so co-relation with early historic settlements which came much later and are 2,400 year old ones (near the Ganga Basin and the Deccan region) is not possible.
- South Asian ancestor theory: Contrary to the theory that there was a large scale immigration of 'Aryans' from Europe to central Asia and then to south Asia, the NCERT textbook revisions mention that the Harappans were indigenous to India, dating back to 10,000 BC.

The Vedic Age

- The Vedic Age refers to the period in ancient Indian history characterized by the composition of the Vedas, which are the oldest sacred texts of Hinduism.
- It's generally dated from around 1500 BCE to 600 BCE.
- During the Vedic Age, society was largely pastoral and tribal, with the Aryans being the dominant group.
- They composed hymns and performed rituals centered around gods like Indra, Agni, Varuna, and Soma.
- These hymns were eventually compiled into the four Vedas: the Rigveda, Samaveda, Yajurveda, and Atharvaveda.
- The Rigveda is a collection of 1,028 hymns divided into 10 mandalas. They are the earliest compositions and hence depict the life of the early Vedic people in India.
- The Samaveda is a collection of verses mostly taken from the Rigveda but arranged in a poetic form to facilitate singing.
- The Yajurveda is found in two recensions, Black and White, and are full of rituals to be performed publicly or individually.
- The Atharvaveda is a collection of magic spells and charms to ward off the evil spirits and diseases.

- The end of the Vedic Age marked the beginning of the later Vedic period, during which the focus shifted from the ritualistic practices of the Vedas to more philosophical inquiries, as seen in the Upanishads.

Mahatma Gandhi and Satyagraha

Syllabus: GS1/Modern Indian History

Context

- On June 7, 1893 MK Gandhi was thrown off a train's first-class compartment at the Pietermaritzburg railway station in South Africa that triggered Gandhi's first act of civil disobedience, or satyagraha.

About the Mahatma Gandhi and Satyagraha

- Mahatma Gandhi, a name synonymous with peace and nonviolent resistance, has left an indelible mark on the world with his philosophy of Satyagraha.

Birth of Satyagraha

- The term 'Satyagraha' was coined by Gandhi during his time in South Africa to distinguish his movement from others under the name 'passive resistance'.
- Derived from 'satya' (truth) and 'agraha' (insistence), Satyagraha translates to 'truth-force' or 'soul-force'.
- Unlike passive resistance, which could include violence and was seen as a weapon of the weak, Satyagraha was a method of nonviolent protest that could be pursued only by the strongest and completely excluded violence.

Pietermaritzburg Incident

- On June 7, 1893, a young lawyer named MK Gandhi was unceremoniously thrown off a train's first-class compartment reserved for 'whites only', at the Pietermaritzburg railway station in South Africa.
- It triggered Gandhi's first act of civil disobedience, or Satyagraha, viewed as one of the most crucial moments in Gandhi's life.

Principles of Satyagraha

- Gandhi envisioned Satyagraha as not only a tactic to be used in acute political struggle but as a universal solvent for injustice and harm.
- He asked Satyagrahis (practitioners of Satyagraha) to follow principles such as nonviolence, truth, non-stealing, non-possession, body-labour or bread-labour, control of desires, fearlessness, equal respect for all religions, and economic strategy such as boycotts of imported goods.
- Satyagraha is more than just civil disobedience, and it extends from the details of correct daily living to the construction of alternative political and economic institutions.
- It seeks to conquer through conversion: in the end, there is neither defeat nor victory but rather a new harmony

Satyagraha in Practice

- One of the earliest implementations of Satyagraha in India was during the Champaran movement in Bihar.
- The socio-politically charged situation in Champaran culminated in the historic Champaran Satyagraha.
- Gandhi's intervention led to a significant shift in the power dynamics between the indigo planters and the oppressed peasants.

Power of Satyagraha

- Gandhi's Satyagraha was not just a political tool; it was a moral and spiritual philosophy. It emphasised the power of truth and moral courage in achieving social and political change.
- Gandhi believed that laws were for the welfare of society, and civil disobedience was a protest against the injustice committed by the lawgivers.

Global Impact of Satyagraha

- The principles of Satyagraha were central to India's struggle for freedom, from the Non-Cooperation Movement (1919-22) to the Civil Disobedience Movement (1930-34), to the Quit India Movement (1942).
- These principles then went on to influence other movements for justice globally, from Martin Luther King Jr's Civil Rights Movement in the United States, to Nelson Mandela's struggle against apartheid.

Legacy

- Mahatma Gandhi's philosophy of Satyagraha has left a lasting legacy that has not only shaped India's freedom struggle but has also influenced numerous movements worldwide.
- Gandhi's philosophy of Satyagraha, developed during his time in South Africa, became a major tool in the Indian struggle against British imperialism and has since been adopted by protest groups in other countries.
- Today, as we navigate through various social and political challenges, the principles of Satyagraha continue to inspire millions around the globe in their quest for justice and equality.

Birth Anniversary of Sant Kabir Das

Syllabus: GS1/Indian History

Context

- Recently, the Prime Minister of India paid his respectful tribute to Sant Kabir Das on his birth anniversary.

About the Kabir Das Jayanti (aka Kabir Prakat Diwas)

- It is celebrated annually on the full moon of Jyeshtha. The exact details of Kabir's birth are obscured by time, but most scholars estimate it to be around 1398 CE.
- Kabir's enduring legacy lies in his poignant poetry, written in simple yet profound Hindi.
- Influenced by the Bhakti movement, his compositions—known as 'Bhajans' and 'Dohas'—explore themes of universal love, social justice, and self-realisation.
- He was best known for his two-line couplets, known as 'Kabir Ke Dohe'.
- Kabir Granthawali, Anurag Sagar, Bijak, Sakhi Granth, Panch Vani;
- The major part of his work was collected by the fifth Sikh guru–Guru Arjan Dev.

Teaching of Kabir

- Kabir's teachings were based on a complete, indeed vehement, rejection of the major religious traditions.
- His teachings openly ridiculed all forms of external worship of both Brahmanical Hinduism and Islam, the pre-eminence of the priestly classes and the caste system.
- Kabir believed in a formless Supreme God and preached that the only path to salvation was through Bhakti or devotion.

Legacy

- Kabir's legacy is still going on through a sect known as Panth of Kabir, a religious community that considers him as the founder.
- Kabir Das Jayanti honours Kabir's enduring legacy of love, tolerance, and social harmony.
- His teachings, which emphasise the unity of God and the futility of religious divisions, continue to inspire people across generations.

Kamakhya Temple

Syllabus: GS1/ Art & Culture

Context

- Devotees from across the nation are flocking to the Kamakhya temple in Assam's Guwahati for the commencement of the annual Ambubachi Mela.

About

- Kamakhya Temple is one of 51 Shaktipeeths in India that is located atop Nilachal Hills in Assam.
- The temple is dedicated to Mother Goddess Kamakhya, who is another form of Goddess Parvati.
- The Ambubachi Mela is an annual Hindu fair organised at Kamakhya Temple. This fest marks the celebration of the yearly menstruation course of goddess Maa Kamakhya.
- Architecture: It had been modelled out of a combination of two different styles, namely, the traditional nagara or North Indian and saracenic or Mughal.
- Thus, being an unusual combination which came into its existence on this famous sakti shrine of India, it has been named as the Nilachala Style of Architecture.

Sengol

Syllabus: GS1/Culture

Context

- Opposition has demanded that Sengol be removed from Parliament.

About

- The Prime Minister ceremonially installed the Sengol near the Speaker's chair in India's new Parliament building last May.
- A sengol — or chenkol — is a royal sceptre, signifying kingship, righteousness, justice, and authority.
- Its origins lie in Tamil Nadu, and it served as a kingly emblem.
- Among the Madurai Nayakas, for example, the sengol was placed before the goddess Meenakshi in the great temple on important occasions, and then transferred to the throne room, representing the king's role as a divine agent.
- As such, the sengol may be described, in its historical context, as a symbol of dharmic kingship.

Nalanda University

Syllabus: GS1/ History and Culture

Context

- The Prime Minister inaugurated the new campus of Nalanda University, close to the site of the ancient ruins of Nalanda in Rajgir, Bihar.

About

- The Parliament of India established the Nalanda University through the Nalanda University Act, 2010.
- It started functioning in 2014 from a makeshift location with 14 students, and construction work started in 2017.

Ancient Nalanda University

- The ancient Nalanda University was established in the 5th century by the Gupta ruler Kumaragupta I.
- It includes stupas, shrines, viharas (residential and educational buildings) and important art works in stucco, stone and metal.
- It was patronized by various rulers including King Harshavardhana of Kannauj (7th century CE) and the Pala rulers (8th – 12th century CE).
- It flourished for 800 years before it was burnt down by Bakhtiar Khilji in the 12th century.
- The site after its decline was first discovered by Sir Francis Buchanan and was systematically excavated and consolidated by the Archaeological Survey of India.

Academic Curriculum

- The curriculum of Nalanda included major Buddhist philosophies like Madhyamaka, Yogachara and Sarvastivada, as well as other subjects like the Vedas, grammar, medicine, logic, mathematics, astronomy and alchemy.
- Chinese scholar Xuanzang (Hsüan-tsang) visited Nalanda in 637 and 642 CE, and studied under the guidance of Shilabhadra.

Significance

- It attracted students from all over the world and stands out as the most ancient university of the Indian Subcontinent.
- In 2016 it was inscribed as a World Heritage Site by UNESCO.

Chapter-
2

POLITY

The tobacco epidemic is growing in India

Syllabus: GS2/Health

Context

- The Ministry of Health and Family Welfare, organized an event on 31 May to observe World No Tobacco Day 2024.

Tobacco Menace in India

- According to an estimate in 2016-2017 after China, India has the world's highest number of tobacco consumers, nearly 26 crore.
- A study of WHO finds that India loses 1% of its GDP to diseases and early deaths from tobacco use.
- Additionally, the health of more than 60 lakh people employed in the tobacco industry is also placed at risk because of the absorption of tobacco through the skin, which can cause various diseases.

Consequences of Tobacco Consumption

- Health burden: A 2021 study estimated that the country incurred a loss exceeding 1.7 lakh crore as a result of tobacco's effects on the health of its consumers in the fiscal year 2017-2018.
- Environment degradation: It is a highly erosive crop that rapidly depletes soil nutrients. This requires more fertilizers to be used which further worsens soil quality.
- Economic burden: Tobacco-related illnesses lead to absenteeism, reduced productivity, and premature deaths in the workforce, impacting economic output.
- Cleaning up tobacco waste has been estimated to cost close to 6,367 crore a year.

Government Measures

- Framework Convention on Tobacco Control (FCTC): India is one of the 168 signatories of the FCTC, launched by WHO in 2005. It aims to reduce tobacco usage worldwide by helping countries develop demand and supply reduction strategies.
- The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply, and Distribution) Act (COTPA) 2003 has 33 sections governing the production, advertisement, distribution, and consumption of tobacco.
- The National Tobacco Control Program (NTCP): India launched NTCP in 2007. It is designed to improve the implementation of COTPA and FCTC, improve awareness about the harms of tobacco use, and help people quit it.
- Prohibition of Electronic Cigarettes Bill, 2019: It prohibits production, manufacture, import, export, transport, sale, distribution, storage and advertisement of e-cigarettes.
- Tobacco taxation, a globally accepted method to effectively control tobacco use, is also applied in India.

Challenges in tobacco control measures in India

- Inadequate Penalties: The fines for violating COTPA regulations have not been updated since 2003, with a maximum fine of only 5,000 for first-time packaging violations.
- Non-compliance with Packaging Guidelines: Smokeless tobacco products often do not adhere to COTPA (Cigarettes and Other Tobacco Products Act) packaging guidelines.
- Ambiguity in COTPA on Indirect Ads: While direct advertisements are banned, the law is unclear on indirect advertisements, allowing surrogate ads (e.g., using elaichi to promote tobacco brands).
- Ineffectiveness of NTCP: In 2018 a study found no significant difference in bidi or cigarette consumption between districts covered by the National Tobacco Control Program (NTCP) and those not covered.

- Evasion Tactics: Tobacco companies evade taxes by purchasing in lower tax jurisdictions and engaging in illegal activities like smuggling, illicit manufacturing, and counterfeiting.
- Affordability of Tobacco: Low tobacco taxes, which have not kept pace with income rises, have made tobacco products more affordable over the years.
- Government and Industry Ties: Engagement of government officials with the tobacco industry and the Central government's 7.8% stake in ITC Ltd., India's largest tobacco company, exemplify conflicts of interest.

Way Ahead

- COTPA, PECA, and NTCP provide a strong framework to successfully control tobacco production and use in India. But they need to be implemented more stringently.
- In addition, the tax on tobacco products also needs to be increased in line with the recommendations of the FCTC, inflation, and GDP growth.
- There is also a need for up-to-date data to understand trends in tobacco use to tackle the tobacco industry, which modifies its sales strategies based on readily available sales trends.

Statutory Bail

Syllabus: GS2/Polity and Governance

Context

- Recently, the Delhi High Court granted statutory bail to a JNU scholar and student activist in connection with a communal riots case involving allegations of sedition.

About the Statutory Bail

- It is a legal provision that allows an undertrial to be released from custody based on specific conditions.
- It is a right granted to an accused, regardless of the nature of the crime.
- It ensures that an undertrial is not detained indefinitely while awaiting trial.

Legal Framework

- The provision of statutory bail is outlined in Section 436A of the Code of Criminal Procedure (CrPC).
- It was introduced through an amendment in 2005 to address the issue of rising undertrials in Indian prisons.

Eligibility Criteria

- An undertrial becomes eligible for statutory bail if they have been in custody for more than half of the maximum period of imprisonment prescribed for the offence.
- The calculation excludes cases where the death penalty is a possible punishment.

Release Conditions

- The undertrial can be released on bail upon their personal bond, with or without sureties.
- If the court denies statutory bail, it must provide written reasons for the refusal.

Exclusions

- Statutory bail does not apply to offences where the death penalty is a potential punishment.
- Any delay caused by the undertrial themselves in legal proceedings is excluded from the detention period calculation.

Bail Provisions in India

– CrPC (1973) governs the terms of the 'Bail in India'.

– Though the CrPC does not define 'bail', it expressly mentions phrases 'bailable offence' and 'non-bailable offence'.

Other Types of Bail

– Interim Bail: It is a temporary bail granted for a shorter time period during which the court can call the documents to make a final decision on the regular or anticipatory bail application.

a. It is granted based on the individual facts of each case.

– Regular Bail: A regular bail is basically the release of an accused from custody to ensure his presence at the trial.

– Anticipatory Bail: It is a type of bail that is given to someone who is in anticipation of getting arrested for a non-bailable offence by the police

Exit polls

Syllabus: GS2/Polity and Governance

Context

- The exit polls are expected to begin as soon as the last vote is cast, of the seven-phase Lok Sabha elections 2024.

What are Exit polls?

- Exit polls give estimates about how people voted in an election.
- They are arrived at on the basis of interviews with voters right after they exit the polling stations, as well as other calculations related to voter data.
- Normally, exit polls are released on the last day of voting, as agencies conducting such polls are mandated by the Election Commission of India (ECI) to wait until polling has been completed in all phases.
- This is to avoid influencing voters who are yet to vote.

The basis of an exit poll

- The science of surveys, which includes exit polls, works on the assumption that data were collected after interviewing a large number of respondents using a structured questionnaire, whether over the telephone or face-to-face.
- It began back in 1957 during the second Lok Sabha elections when the Indian Institute of Public Opinion conducted a poll.

Potency Test

Syllabus: GS2/Polity

Context

- The Special Investigation Team (SIT) which is investigating sexual assault allegations against a Member of Parliament is likely to have him take medical tests, including a potency test.

About Potency Test

- It is conducted to examine whether a male has the capacity to develop or maintain a penile erection to be able to perform a sexual act.
- This medical 'evidence' is brought in cases involving sexual assault, divorce, and even in paternity suits.
- Section 53 of the Code of Criminal Procedure (CrPC) allows examination of "blood, blood-stains, semen, swabs in case of sexual offences on the accused for investigation.
- In sexual assault cases, the prosecution brings a potency test report to the court to counter any potential defence from the accused that he is incapable of sexual intercourse.
- Such a defence, however, is far from foolproof.
- Potency is not permanent, and can vary depending on several physiological and psychological factors.
- After the 2013 criminal law amendments, the definition of rape was expanded.
- Now, under the law, rape includes penetration of "any object", "mouth" to "any part of body" of a woman.
- A non-peno-vaginal contact does not necessarily need a test of potency at all.

Living will

Syllabus :GS 2/Governance

In News

- Justice M S Sonak, who serves on the Goa Bench of the Bombay High Court, became the first person in Goa to register a "living will".

About Living will

- A 'living will' is a legal document prepared in advance, detailing your preferences for medical care or for the termination of medical support in circumstances in which you are no longer able to make those decisions for yourself.
- Observations of Court : The Supreme Court ruled in 2018, that in specific conditions, a person has the right to decide against artificial life-support by writing a living will.
- It upheld the fundamental right to die peacefully and with dignity.
- It had allowed passive euthanasia while recognising the living wills of terminally-ill patients who could go into a permanent vegetative state and issued guidelines regulating the procedure.
- Guidelines: According to the modified guidelines, to make a living will, one must be of legal age and sound mind.
- The person must be aware of the conditions in which curative treatments and life support systems will be halted.
- The decision to prepare a living will must be taken without any external compulsion.
- The signing of the will must be witnessed by two people and should further be attested by a gazetted officer or a notary. A copy must be handed over to the doctor and an assigned person (a close relative or friend). Copies of the living will should also be sent to the secretary of the local self-government and the district magistrate.

IAMAI on Proposed Digital Competition Bill

Syllabus :GS 2/Governance

In News

- Members of the Internet and Mobile Association of India (IAMAI) expressed a divergent stance on the proposed Digital Competition Bill (DCB), and have written to the Ministry of Corporate Affairs (MCA) to quickly implement regulations that prevent anti-competitive practices.

About the bill

- The bill emerges against the backdrop of the Competition Act, 2002, and subsequent amendments and recommendations aimed at updating India's competition framework to better address the digital economy.
- The Ministry of Corporate Affairs constituted the Committee on Digital Competition Law to draft this bill, which seeks to introduce ex-ante measures for regulating Big Tech companies
- Ex-ante regulations are proactive measures designed to prevent certain practices before they occur.

Key Proposals of the Bill

- The bill identifies Systemically Significant Digital Enterprises (SSDEs) and subjects them to certain restrictions to prevent anti-competitive conduct.
- These include prohibitions on self-preferencing and anti-steering practices.
- It seeks to complement the current ex-post framework with ex-ante measures.
- It has proposed a penal structure for those found guilty of anti-competitive practices, and has also suggested restrictions to cross-sharing of data and breaking up of groups of apps and services that serve only specific companies.

Purpose

- In the rapidly evolving digital landscape, India has taken a significant step towards regulating anti-competitive practices with the introduction of the Draft Digital Competition Bill.
- The bill aims to create a level playing field in the digital economy, ensuring fair competition and fostering innovation.

- It aims to ensure a fair, transparent, and contestable digital ecosystem.
- It also aims to foster a balanced digital ecosystem, promoting innovation and protecting the interests of smaller players, including startups

Concerns and Criticisms

- Despite its intentions, the bill has faced criticism for potentially being too restrictive.
- Stakeholders have expressed concerns that it could stifle innovation, undermine the interests of Indian tech companies, and make consumers more vulnerable to cyber fraud
- It may hinder investments in tech startups and negatively impact micro, small, and medium enterprises (MSMEs)
- There are also worries about consumer vulnerability to cyber fraud

Government's Stance

- The government emphasises that the bill is not meant to regulate big players per se but to regulate on an ex-ante basis to prevent potential harm to competition.

Conclusion and Way Forward

- As India positions itself to become an innovation-led economy, the Digital Competition Bill represents a critical juncture.
- As the bill undergoes public scrutiny and debate, it will be crucial to strike a balance between regulation and innovation to safeguard the interests of all stakeholders in India's burgeoning digital economy.

Representation of Women in the Lok Sabha

Syllabus: GS1/Role of Women; GS2/Governance

Context

- A total of 74 women have won the recent Lok Sabha elections, a slight dip from 78 elected in 2019.

About the Women in the 18th Lok Sabha

- India has elected 74 women Members of Parliament (MPs) to the Lok Sabha in 2024, four fewer than in 2019, but 52 more than in India's first elections in 1952.
- These 74 women constitute just 13.63% of the elected strength of the Lower House, which is much less than the 33% that will be reserved for women after the next delimitation exercise.

Comparison with Previous Years

- Over the years, the Lok Sabha's gender composition has shown a general trend towards increasing women's representation. However, progress has been slow and not linear.
- In 1952, women made up just 4.41% of the strength of the Lower House, and it increased to more than 6% in the election held a decade later, but again dipped to below 4% in 1971.
- Since then, there has been a slow, but steady rise in women's representation (with a few exceptions), which crossed the 10% mark in 2009, and peaked in 2019 at 14.36%.

CHANGE IN WOMEN'S STRENGTH IN LOK SABHA OVER THE YEARS

Year	Percentage
1952	4.41%
1957	5.46%
1962	6.28%
1967	5.58%
1971	4.22%
1977	3.51%
1980	5.17%
1984	8.17%
1989	5.48%
1991	7.06%
1996	7.37%
1998	7.92%
1999	9.02%
2004	8.29%
2009	10.68%
2014	11.42%
2019	14.36%
2024	13.63%

- After the 2014 Lok Sabha elections, that number rose to just 12.15%. There are no seats set aside for female or male candidates in the Indian parliament.
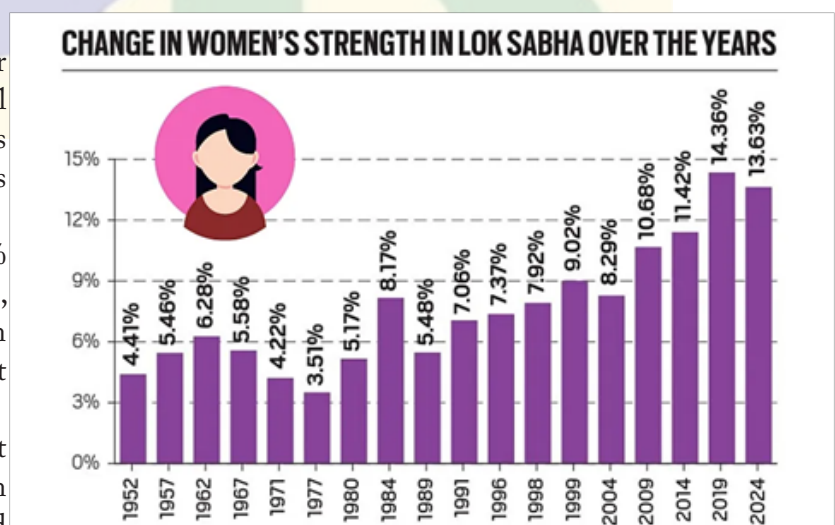
Global Comparison

- According to the Inter-Parliamentary Union, women make up roughly 26% of lawmakers worldwide.

- One of the few nations with a majority of female legislators is New Zealand.
- For instance, 46% of MPs in South Africa, 35% in the UK, and 29% in the US, are women.

Reasons for low Participation of Women

- Low literacy: One of the biggest obstacles to empowering women politically is illiteracy. In general, female candidates are less educated and experienced than male candidates.
- In India, women have a literacy rate of 65% compared to men's 82%.
- Lack of political will: The fact that the bill reserving one-third of the seats for women was repeatedly defeated shows that the lawmakers lack political will.
- All parties' platforms still include the measure, but it has never been put into action.
- Masking of the identity: 206 women individually participated in the 2019 elections, but only one of them took home the victory.
- It demonstrates the role that political parties and a person's upbringing played in determining their political success. Her true identity is concealed by the party and family.
- Patriarchy: Despite having the majority, women do not actually experience their authority because male spouses or other family members often have a say in their decisions. The formation of Sarpanchpati in Panchayati is a clear example of this.
- Gender Disparities: Women still face obstacles in the form of gender biases and disparities in education, resource ownership, and attitudes.
- Lack of confidence and finance: They were the other main obstacles that kept women from pursuing careers in politics.
- Sexual division of labour: A system in which the ladies of the household either handle all domestic labour themselves or organise it through domestic assistants.
- It implies that women devote far more time to caring for the home and children than do males.
- Slander and abuse: This is one of the primary barriers that prevent women from running in elections that they encounter during campaigning.
- Lack of safety is the additional factor stated.

Significance of Women Participation

- Representation: Women lawmakers ensure that the interests and issues of women are represented in policy-making.
- Diversity: They bring diverse perspectives and experiences to the table, which can lead to more comprehensive and inclusive policies.
- Empowerment: Their presence in law-making bodies can empower other women and girls by providing them with role models.
- Equality: It is a matter of gender equality. Women make up half of the population and should therefore have an equal say in the laws that govern society.

Efforts to reduce the gap

- In India, the National Commission for Women has been actively working towards enhancing women's participation in all spheres, including law-making.
- They have organised consultations on the rights of women under property law and conducted impact assessments of the 73rd and 74th Amendments (1992) in the Indian Constitution, which pertain to the role of women representatives in Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs).
- The National Human Rights Commission (NHRC) has conducted an analytical study on the United Nations Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and its implementation in India.
- It is expected to be of great value to lawmakers, policymakers, executives, civil society, academicians, and students of gender studies, human rights, and related disciplines.
- Nari Shakti Vandan Adhiniyam (2023): This recent amendment, also known as the Women's Reservation Bill, proposes to reserve one-third of seats for women in the Lok Sabha (lower house of parliament) and state legislative assemblies. While pending presidential assent, it marks a significant step towards greater female representation in national politics.

- National Policy for Women Empowerment: The goal of this Policy is to bring about the advancement, development, and empowerment of women.
- The Policy aimed to be widely disseminated so as to encourage active participation of all stakeholders for achieving its goals.

Conclusion

- The representation of women in the Lok Sabha is a reflection of the broader societal attitudes towards gender equality.
- While there has been a gradual increase in the number of women MPs over the years, there is still a long way to go to achieve gender parity in the Indian Parliament.
- The upcoming delimitation exercise, which will reserve 33% of seats for women, is a step in the right direction.
- However, it is essential to continue the discourse on this issue and work towards creating an inclusive and representative political system.

SC Mandates Self-Declaration by Advertising Agencies Before Releasing Advertisements

Syllabus: GS2/Governance

Context

- The Supreme Court has issued a directive that all advertisers/ Advertising Agencies must submit a 'Self-Declaration Certificate' before publishing or broadcasting any advertisement.

About

- The Ministry of Information and Broadcasting has introduced a new feature on the Broadcast Seva Portal for TV and Radio Advertisements and on Press Council of India's portal for Print and Digital/Internet Advertisements.
- The self-declaration certificate is to certify that the advertisement:
- does not contain misleading claims, and
- complies with all relevant regulatory guidelines.
- Advertisers must provide proof of uploading the Self-Declaration Certificate to the relevant broadcaster, printer, publisher, or electronic media platform for their records.
- No advertisement will be permitted to run on television, print media, or the internet without a valid Self-Declaration Certificate and will become Mandatory For All New Advertisements From 18th June, 2024.
- It is a step towards ensuring transparency, consumer protection, and responsible advertising practices.

Significance of the Step

- Ensure transparency and accountability: The step seeks to prevent the publication of misleading advertisements without holding manufacturers, promoters, and advertisers responsible. This promotes a fair and transparent marketplace where consumers are not deceived.
- Ensure consumer protection: The step aims to safeguard consumer rights by preventing unfair trade practices and false advertisements that harm public interest. This ensures that consumers make informed decisions based on accurate information.
- Ensure better implementation of Legislations and Rules: The step is likely to improve the enforcement of existing laws and regulations, such as the Misleading Advertisements and Endorsements of Misleading Advertisements Regulations, thereby strengthening the legal framework against false advertising.

Advertising Standards in India

- Some of the principal legislations are –
- Cable Television Networks (Regulation) Act, 1955
- Press Council of India Act, 1978
- Cable Television Networks(Amendment) Rules, 2006
- There are also some prominent, prohibitory legal provisions that regulate advertising.
- In 1985, the Advertising Standards Council of India ("ASCI"), a non statutory tribunal, was established that created a self regulatory mechanism of ensuring ethical advertising practices.

- ASCI entertained and disposed of complaints based on its Code of Advertising Practice ("ASCI Code").
- This Code applies to advertisements read, heard or viewed in India even if they originate or are published abroad so long as they are directed to consumers in India or are exposed to a significant number of consumers in India.
- The Central Consumer Protection Authority (CCPA) under the Department of Consumer Affairs has notified 'Guidelines for Prevention of Misleading Advertisements and Endorsements for Misleading Advertisements, 2022'.
- Its objective is to curb misleading advertisements and protect the consumers, who may be exploited or affected by such advertisements.

Demand for Bifurcation of States in India

Syllabus: GS2/Indian Polity

Context

- Andhra Pradesh was bifurcated into two states 10 years ago and resulted into formation of a new state of Telangana.

Reorganisation of States in India

- Pre-Independence Era: Before India gained independence from British rule in 1947, the territory of the Indian subcontinent was divided into numerous princely states, provinces, and regions under direct British control.
- The boundaries were drawn based on administrative convenience rather than linguistic, cultural, or ethnic considerations.
- Creation of States: The demand for linguistic states gained momentum post-independence. One of the earliest and most significant movements was the demand for Andhra Pradesh, based on the Telugu-speaking population.
- The States Reorganisation Commission (SRC) was established in 1953 to examine the demand for linguistic states.
- Based on its recommendations, the Indian states were reorganized along linguistic lines in 1956.
- This led to the formation of states such as Maharashtra, Gujarat, Karnataka, and Punjab.
- Further Reorganizations: Creation of new states like Haryana and Himachal Pradesh in 1966, the formation of Uttarakhand (formerly part of Uttar Pradesh) and Jharkhand (formerly part of Bihar) in 2000, and the bifurcation of Andhra Pradesh to create Telangana in 2014.

Process to form/rename a state in India

– Article 3 authorizes the Parliament to:

a. form a new state by separation of territory from any state or by uniting two or more states or parts of states or by uniting any territory to a part of any state;

b. increase the area of any state;

c. diminish the area of any state;

d. alter the boundaries of any state; and

e. alter the name of any state.

– However, Article 3 lays down two conditions in this regard: a bill contemplating the above changes can be introduced in the Parliament only with the prior recommendation of the President; and before recommending the bill, the President has to refer the same to the state legislature concerned for expressing its views within a specified period.

– The President (or Parliament) is not bound by the views of the state legislature and may either accept or reject them.

– Moreover, the Indian Constitution (Article 4) itself declares that laws made for alteration of names of existing states (under Articles 3) are not to be considered as amendments of the Constitution under Article 368. such laws can be passed by a simple majority and by the ordinary legislative process.

Factors Responsible for Demands for a Separate State

- Linguistic and Cultural Identity: Communities often feel that their distinct language, culture, and heritage are not adequately represented or protected within larger states.

- Regional Disparities: Economic and developmental disparities between different regions within a state often fuel demands for bifurcation.
- Political Representation: Some regions feel that they are not adequately represented in state governments or at the national level due to their minority status within larger states.
- The creation of separate states can provide better political representation and empower local leaders to address the specific needs and concerns of their communities.
- Resource Allocation: Disputes over the distribution of resources, such as water, land, and revenue, also drive demands for bifurcation.
- Historical Grievances: Historical injustices, perceived discrimination, and unresolved grievances from the past fuel demands for state bifurcation.

Challenges

- Political Opposition: One of the foremost challenges is political opposition from various stakeholders, including political parties, leaders, and interest groups, who may have vested interests in maintaining the status quo or have concerns about the impact of bifurcation on their political influence.
- Administrative Reorganization: It requires the creation of new administrative units, redistribution of resources, and delineation of boundaries, which lead to administrative inefficiencies and confusion.
- Resource Allocation: Dividing a state often raises issues related to the allocation of resources such as water, land, and financial resources.
- Disputes over the distribution of resources can arise between the newly formed states, leading to prolonged negotiations and conflicts.
- Social Integration: Bifurcation affect social cohesion and integration, particularly in regions with diverse ethnic, linguistic, and cultural identities.
- There are often emotional attachments to existing state boundaries, which can make any proposed changes contentious.

Way Ahead

- The demand for new states or the reorganization of existing ones continues to persist in India, driven by factors such as regional identity, economic disparities, and governance issues.
- Any future reorganizations will likely involve careful deliberation and negotiation to balance competing interests and maintain the unity and integrity of the nation.

Living Will and Passive Euthanesia

Syllabus: GS2/Polity

Context

- Justice M S Sonak, who serves on the Goa Bench of the Bombay High Court became the first person in Goa to register a "living will".

Living Will

- A living will is a written document that specifies the actions to be taken if the person is unable to make their own medical decisions in the future.
- The Supreme Court had in 2018 legalised passive euthanasia, contingent upon the person having a "living will".

Passive Euthanasia

- Passive euthanasia entails the deliberate decision to withhold or withdraw medical interventions, like life support, with the aim of permitting a person's natural death.
- Conversely, active euthanasia involves a direct action, such as administering a lethal substance, to end a person's life.
- Passive euthanasia is legalised to recognise the living wills of terminally-ill patients who could go into a permanent vegetative state and issued guidelines regulating the procedure.
- Goa is the first state that has formalised, to some extent, the implementation of directives issued by the Supreme Court.

Significance

- Patients, even in the eventuality of terminal illness with no hope of recovery or irreversible coma, are often kept on life support just to delay death — perhaps under social or family pressure. These expensive treatments push many families into a huge debt trap.

Scope of Shifting to Proportional Representation

Syllabus: GS2/Polity

Context

- There is a growing consensus among a broad cross-section of citizens and political parties in India that the current First-Past-The-Post (FPTP) electoral system must be replaced with proportional representation.

What is First Past the Post System?

- FPTP is a simple electoral system used in many countries, including the United States, Canada, the United Kingdom, and India.
- In this system, the candidate who receives the most votes in a constituency or district wins the seat, regardless of whether they have an absolute majority (more than 50% of the votes).

Features of the FPTP

- Voting: Each voter casts one vote for their preferred candidate.
- They choose from a list of candidates, usually representing different political parties or independent candidates.
- Counting Votes: After voting closes, the votes are counted, and the candidate with the most votes is declared the winner.
- There is no requirement for the winning candidate to receive more than 50% of the total votes cast.
- Winner Takes All: The candidate who wins the most votes in a constituency or district is awarded the seat, and the other candidates receive nothing, even if they have a significant share of the vote.

Significance

- The FPTP system is simple and the most feasible method in a large country like India.
- FPTP provides greater stability to the executive in parliamentary democracy because the ruling party/coalition can enjoy a majority in the Lok Sabha/Legislative assembly without obtaining a majority of the votes (more than 50%) across constituencies.

Criticism

- One common criticism is that it can lead to disproportionate representation, where parties with significant overall support may not win a proportionate number of seats.
- It may result in over or under representation of political parties when compared to their vote share.
- It also discourages smaller parties or independent candidates from participating, as they may struggle to win seats under this system.
- Elected representatives tend to pay more attention to those who voted for them.
- The representative is often compelled to indulge in vote-bank, competitive politics or sectoral politics to remain popular and ensure re-election in the next round.

Proportional Representation (PR)

- It is an electoral system where the distribution of seats in a legislative body is closely aligned with the proportion of votes received by each participating political party or group.
- Unlike First Past the Post (FPTP), where the candidate with the most votes in each constituency wins, PR aims to ensure that the overall composition of the legislative body reflects the overall distribution of voter preferences.

Table 2: If the PR system is applied for the 2024 election

Political formation	% of votes	Actual number of seats	Seats as per PR
National Democratic Alliance (NDA)	43.3%	293*	243
INDIA bloc	41.6%	234	225
Others/independents	15.1%	16	75
Total	**100%**	**543**	**543**

There are various types of proportional representation systems:

- Party List PR: In this system, voters cast their vote for a political party rather than a specific candidate.
- Seats are then allocated to parties in proportion to the total number of votes each party receives.
- Parties provide a ranked list of candidates, and seats are filled based on the order of candidates on the list.
- Mixed-Member Proportional (MMP): This system combines elements of both FPTP and PR.
- Voters cast two votes: one for a candidate in their local constituency and one for a political party.
- Some seats are filled by the winners of the local constituency races, while additional seats are allocated to parties to ensure proportionality based on the overall party vote.
- Single Transferable Vote (STV): In STV, voters rank candidates in order of preference in multi member constituencies.
- Candidates are elected based on achieving a certain quota of votes, with surplus votes from elected candidates and votes from eliminated candidates being redistributed until all seats are filled.
- Mixed-Member Majoritarian (MMM): This system combines FPTP with additional proportional seats.
- A portion of seats are filled by FPTP, while additional seats are allocated to parties to ensure proportionality based on the overall party vote.

Significance

- Proportional representation systems aim to provide fairer representation for a broader range of political viewpoints, reduce wasted votes, and encourage voter turnout.

Criticism

- The main criticism against the PR system is that it could potentially result in instability as no party/coalition may obtain a majority to form the government in our parliamentary democracy.
- Some experts assert that the PR system slows down decision-making, resulting in the weakening of the government itself.
- It is possible that extreme pluralism can allow tiny minority parties to hold larger parties to ransom in coalition negotiations. The inclusiveness of the PR system is thus cited as a drawback.
- The PR system may reduce accountability to voters because an ousted party of the government can still remain in office by finding new coalition partners after an election.
- Under a PR system, it may be difficult to remove a reasonably sized centre party from power.

Way Ahead

- The discrepancies and associated flaws of the FPTP can be reduced, if not eliminated, to make India's democratic system more responsive and reflective of the will of the people.
- There is a consensus among supporters of democracy that the ruling party and the opposition are equally significant for the sustainability and functioning of a democratic system.
- Because of the FPTP electoral system, the opposition has been eliminated or reduced to a minimum several times in the past, for example in 1984, 2014, and in the first three general elections held after Independence.
- The law commission in its 170th report, 'Reform of the electoral laws' (1999), had recommended the introduction of the MMPR system on an experimental basis.
- It had suggested that 25% of seats may be filled through a PR system by increasing the strength of the Lok Sabha.

Delay in Conducting Census in India

Syllabus: GS2/Governance

Context

- India is among a select few countries that have not conducted the latest Census.
- The last census conducted in India was in 2011 and has been postponed indefinitely since 2021.

About

- India shares distinction of not conducting the census with conflict-ridden countries such as Ukraine, Yemen, Syria and Myanmar — impacted by civil wars, the Taliban-ruled Afghanistan, the economic crisis-affected Sri Lanka besides several sub-Saharan African countries that have also undergone turmoil.

What is the Census?

- The Census refers to a periodic and systematic collection of demographic, economic, and social data of a population within a specific region.
- It is typically conducted by governments to gather detailed information about the population's characteristics and living conditions.
- The Census provides crucial data that governments, businesses, researchers, and policymakers use for various purposes such as planning public services, allocating funding, and making informed decisions.

Census in India

- The Census in India has been conducted regularly since 1871. The first complete Census was conducted in 1881.
- Initially, the Census was primarily aimed at assessing revenue and taxation needs under British colonial rule.
- Over time, its scope expanded to include demographic, social, and economic data.
- Constitutional Mandate: The Census of India is conducted under the provisions of the Census Act of 1948, which empowers the Government of India to conduct periodic population surveys.
- Frequency: The Census of India is conducted decennially, meaning it takes place every ten years.
- The most recent Censuses were conducted in 2011.

Significance of Census

- Policy Formulation: It provides crucial inputs for planning and formulating policies related to education, healthcare, infrastructure development, and social welfare.
- Resource Allocation: It helps in equitable distribution of resources by providing data on population distribution, demographics, and socio-economic conditions.
- Demographic Trends: It aids in understanding demographic trends, urbanization patterns, migration flows, and population growth rates.
- Monitoring Development Goals: The Census data is instrumental in monitoring progress towards national and international development goals, such as Sustainable Development Goals (SDGs).

Why There is a delay in conducting the Census in India?

- COVID-19 Pandemic: The COVID-19 pandemic significantly disrupted the scheduling and planning of various activities, including large-scale surveys like the Census.
- Preparation and Planning: Conducting a Census in a country as vast and populous as India requires meticulous planning, resource mobilization, and coordination across various government departments.
- Political and Administrative Priorities: Governments prioritize other activities or elections, leading to delays in the Census process.
- Technological and Methodological Upgradation: Periodic updates and improvements in technology and methodologies used for data collection, processing, and analysis require additional time and resources.
- Complexity of Data Collection: India's diversity in terms of geography, languages, cultures, and socio-economic conditions poses unique challenges in conducting a comprehensive Census.

Conclusion

- Census data should validate the various estimates on mortality based on 'excess deaths' analyses during the COVID-19 pandemic.

- It is imperative that decadal changes in India's demography related to urbanisation and migration of people across States are captured adequately.
- Welfare schemes such as the targeted Public Distribution System under the National Food Security Act depend on population estimates, and the government continues to rely on Census 2011, which is now outdated.
- Considering these and other imperatives for the smooth planning and implementation of administrative, welfare and statistical management for governance, the Union government must show eagerness in commencing the Census.

Parliamentary Oath

Syllabus: GS2/ Indian Polity

In News

- The first session of the 18th Lok Sabha began today with newly elected MPs taking oaths as members of the House.

About

- Article 99 states that every member of either House of Parliament shall, before taking their seat, subscribe to an oath or affirmation according to the Third Schedule of the Constitution.
- Oath or affirmation is taken in English or any of the 22 languages specified in the Constitution.

Importance

- By taking the oath, MPs commit themselves to upholding the Constitution.
- It is a solemn affirmation of the elected members' commitment to serving the nation and its people with integrity, honesty, and accountability.

Enforcement

- If an MP fails to take the oath or affirmation within the prescribed time, their seat may be declared vacant.
- The Constitution under Article 104, also specifies a financial penalty of Rs 500 if a person participates or votes in House proceedings without taking an oath.

Can MPs in jail take the oath?

- The Constitution specifies that if an MP does not attend Parliament for 60 days, their seat can be declared vacant.
- Courts have used this ground to allow MPs in jail to take an oath in Parliament.

Keralam

Syllabus: GS2/Indian Polity

Context

- The Kerala Legislative Assembly, in a unanimous decision, passed a resolution proposing a Constitutional amendment to change the name of the State from 'Kerala' to 'Keralam'.

About

- The resolution called for invoking Article 3 of the Indian Constitution to effectuate this change in the First Schedule.
- Despite 'Keralam' being the Malayalam name of the State, it continues to be officially recorded as 'Kerala'.
- The resolution aims to align the official name with the Malayalam pronunciation.

Background

- Origin of the name: The earliest epigraphic record that mentions Kerala is emperor Asoka's Rock Edict II of 257 BC.
- The inscription refers to the local ruler as Keralaputra ("son of Kerala"), and also "son of Chera" referring to the Chera dynasty.
- At present the First Schedule of the Constitution also specifies the name of the State as 'Kerala.'

Formation of the Modern State

- The people speaking Malayalam had been ruled by various kings and princely states in the region.
- In the 1920s, the Aikya (unified) Kerala movement gathered momentum and a demand for a separate state for Malayalam-speaking people came up.
- It aimed at the integration of Malabar, Kochi and Travancore into one territory.
- After independence, merger and integration of princely states was a major step towards the formation of the state of Kerala.
- On 1 July, 1949, the two states of Travancore and Kochi were integrated, heralding the birth of the Travancore-Cochin State.
- When it was decided to reorganize states on a linguistic basis, the State Reorganisation Commission of the Union Government recommended creation of the state of Kerala.
- Later the State Reorganisation Commission (Fazl Ali Commission) recommended reorganizing states on a linguistic basis and creation of the state of Kerala.
- The state of Kerala came into being on November 1, 1956. In Malayalam, the state was referred to as Keralam, while in English it was Kerala.

Process to rename a state in India

– Article 3 authorizes the Parliament to:

a. form a new state by separation of territory from any state or by uniting two or more states or parts of states or by uniting any territory to a part of any state;

b. increase the area of any state;

c. diminish the area of any state;

d. alter the boundaries of any state; and

e. alter the name of any state.

– However, Article 3 lays down two conditions in this regard:

a. a bill contemplating the above changes can be introduced in the Parliament only with the prior recommendation of the President;

b. and before recommending the bill, the President has to refer the same to the state legislature concerned for expressing its views within a specified period.

– The President (or Parliament) is not bound by the views of the state legislature and may either accept or reject them.

– Moreover, the Indian Constitution (Article 4) itself declares that laws made for alteration of names of existing states (under Articles 3) are not to be considered as amendments of the Constitution under Article 368.

a. Such laws can be passed by a simple majority and by the ordinary legislative process.

'Twin Test' for Granting Bail under PMLA

Syllabus: GS2/Polity

Context

- The Delhi High Court stayed the bail grainted to Delhi Chief Minister by trial court under the Prevention of Money Laundering Act (PMLA).
- The ED challenged the trial court's order on the ground that the court had failed to apply the 'twin test' for granting bail under PMLA.

About

- Section 45 of the PMLA, which deals with bail, first states that no court can grant bail for offences under this law, and then proceeds to mention a few exceptions.
- The negative language in the provision itself shows that bail is not the rule but the exception under PMLA.
- The provision makes it mandatory to hear the public prosecutor in all bail applications, and when the prosecutor opposes bail, the court is required to apply a twin test.
- These two conditions are: (i) that there are "reasonable grounds for believing that [the accused] is not guilty of such offence"; and (ii) that "he is not likely to commit any offence while on bail".
- There are similar provisions in several other laws that deal with serious offences — for example, Section 36AC of The Drugs and Cosmetics Act, 1940, Section 37 of The Narcotic Drugs and Psychotropic Substances Act, 1985, and Section 43D(5) of the Unlawful Activities Prevention Act, 1967.

Safai Apnao, Bimaari Bhagao (SABB) Initiative

Syllabus: GS2/ Governance

In News

- The Ministry of Housing and Urban Affairs (MoHUA) has launched the Safai Apnao, Bimaari Bhagao (SABB) initiative under Swachh Bharat Mission-Urban 2.0 to help Urban Local Bodies (ULBs) prepare for the monsoon season.

About

- SABB, a part of the 'STOP Diarrhoea Campaign' by the Ministry of Health and Family Welfare, will run from 1 July to 31 August 2024.
- The initiative focuses on improving sanitation and hygiene conditions during the monsoon season through activities such as cleanliness drives, waste collection, and water quality sampling.
- It also aims to identify high-risk areas and adopt the Protect Prevent Treat Strategy (PPTS).

Swachh Bharat Mission-Urban 2.0

- It is the second phase of the Swachh Bharat Mission, a nationwide cleanliness campaign launched by the Government of India in 2014.
- SBM-U 2.0, launched on October 1, 2021, builds upon the achievements of the first phase and aims to make urban India "garbage free" by 2026.
- It aims to achieve 100% source segregation of waste, door-to-door collection, and scientific management of all waste fractions, including safe disposal in scientific landfills.
- Open Defecation Free++ (ODF++): ensure that all community and public toilets are functional and well-maintained, and treat and reuse wastewater.

eSakhsya App

Syllabus: GS2/Governance

Context

- The Union Ministry of Home Affairs (MHA) is testing eSakshya (e-evidence), a mobile-based application.

About

- The mobile application is developed by the National Informatics Centre (NIC).
- NIC was established in 1976 with the objective to provide technology-driven solutions to Central and State Governments.
- It comes under the Ministry of Electronics and Information Technology (MeitY) is the technology partner of the Government of India.
- The app is to help police record the scene of crime, search and seizure in a criminal case and upload the file on the cloud-based platform.
- The police official will have to upload a selfie after the procedure is complete.
- Each recording could be a maximum four minutes long and several such files could be uploaded for each First Information Report (FIR).
- The new criminal laws make everything digital; if there is slightest of issue in recording a scene of crime or procuring digital evidence, it could lead to criminals walking free.

Deputy Speaker of Lok Sabha

Syllabus: GS2/ Polity

Context

- The post of the Deputy Speaker of Lok Sabha has become a bone of contention between the ruling and the opposition party of India.

Deputy Speaker of Lok Sabha

- The Deputy Speaker serves as the Second-in-Command Presiding Officer of the Lower House of Parliament of India – the Lok Sabha.
- According to Article 95(1), the Deputy Speaker performs the duties of the Speaker if the post is vacant.

Election of Deputy Speaker

- The Deputy Speaker of Lok Sabha is elected by the Lok Sabha itself from amongst its members.
- Article 93 states that "The House of the People shall, as soon as may be, choose two members of the House to be respectively Speaker and Deputy Speaker".
- The election of Deputy Speaker is governed by Rule 8 of the Rules of Procedure and Conduct of Business in Lok Sabha. According to Rule 8, the election "shall be held on such date as the Speaker may fix".
- Usually, the Speaker is chosen from the ruling party or ruling alliance, while the Deputy Speaker is selected from the opposition party or opposition alliance.
- However, there have been exceptions to this convention.
- The first four Deputy Speakers, from 1952 to 1969, were from the ruling Congress.
- There was no Deputy Speaker for the entire duration of the 17th Lok Sabha (2019-24).

Roles and Functions of Deputy Speaker of Lok Sabha

- The Deputy Speaker performs the duties of the Speaker when the office of the Speaker is vacant.
- The Deputy Speaker acts as the Speaker when the latter is absent from the sitting of the House.
- The Deputy Speaker presides over joint sittings of both Houses of Parliament in case the Speaker is absent from such a sitting.

Powers and Privileges

- While performing the duties of or acting as the Speaker of Lok Sabha (i.e. while presiding over the sitting of Lok Sabha or a Joint Sitting of both the Houses), he/she assumes all the powers of the Speaker of Lok Sabha.
- Thus, in such times, the Deputy Speaker cannot vote in the first instance, rather he/she can only exercise a Casting Vote in case of a tie.
- When the Speaker presides over the House, the Deputy Speaker is like any other Ordinary Member of the House.
- Thus, in such times, the Deputy Speaker can speak in the House, participate in its proceedings, and vote in the first instance on any question before the House.
- He/she has one special privilege -Whenever the Deputy Speaker of Lok Sabha is appointed as a member of a Parliamentary Committee, he/she automatically becomes its chairman.

Removal of Deputy Speaker of Lok Sabha

- The Deputy Speaker of Lok Sabha can be removed by a resolution passed by the Lok Sabha by an Effective Majority (i.e. a majority of the total membership of the House excluding the vacant seats).
- A motion of removal of the Speaker of Lok Sabha can be moved only after giving 14 days' advance notice to the Speaker.
- When a resolution for removal of the Deputy Speaker is under consideration, he/she cannot preside at the sitting of the house, though he may be present.

Joint Session of Parliament

Syllabus: GS2/Indian Polity

Context

- Recently, the President of India addressed the Joint Sitting Of Lok Sabha and Rajya Sabha in Parliament.

About

- The President's Address to the Joint Session of Parliament is a significant event in India's democratic process.
- It marks the beginning of the Parliamentary Session and outlines the Government's Policies, Legislative Agenda, Achievements, and Future Plans.

Historical Background

– In the United Kingdom, the tradition of the monarch addressing the Parliament began in the 16th century.
– In the United States, President Gorge Washington addressed Congress for the first time in 1790.

Evolution in India

– In India, the practice of the President addressing Parliament was established after the promulgation of the Government of India Act in 1919.
– Between 1947 and 1950, there was no address to the Constituent Assembly (Legislative).
– After the Constitution of India came into force, President Rajendra Prasad addressed members of Lok Sabha and Rajya Sabha for the first time on January 31, 1950.

Constitutional Provisions

- The Constitution of India gives the President and the Governor the power to address a sitting of the legislature.
- Article 87 provides two instances when the President specially addresses both Houses of Parliament.
- The President of India addresses both the Rajya Sabha and the Lok Sabha at the beginning of the first Session after each general election when the reconstituted lower house meets for the first time.
- The President also addresses both the houses at the beginning of the first session of each year.
- Procedure and Tradition: There is no set format for the President's or Governor's speech. The Constitution of India states that the President shall 'inform Parliament of the cause of the summons'.
- The President's speech essentially highlights the government's policy priorities and plans for the upcoming year, and provides a broad framework of the government's agenda and direction.
- After the President's address, the two Houses move a 'Motion to Thank' the President for her speech.

Cohabitation in France

Syllabus: GS2/Polity

Context

- After 22 years, there is a real chance that the phenomena of cohabitation can be seen in the Polity of France.

About

- After two rounds of polling, France will elect a new National Assembly.
- For the first time in 22 years, there is a real possibility that the President and the Prime Minister, leader of the National Assembly, will not be from the same party.
- In the cohabitation system, the French legislature is dominated by a coalition/party opposing the President.
- In such instances, the President is obliged to appoint a leader from the opposing party as Prime Minister, who enjoys the support of a parliamentary majority.
- Cohabitation has only occurred thrice ever since France transitioned into the Fifth Republic.
- Fifth Republic: The current political regime, called the Fifth Republic, first came into effect in 1958, replacing the former parliamentary republic system.
- The French President has been directly elected by popular vote, while the Prime Minister is the leader of the largest party/coalition in the National Assembly.

Appointment of 18th Lok Sabha Speaker

Syllabus: GS2/Polity

Context

- The ruling BJP-led NDA nominee, Om Birla, was elected as the Speaker of the 18th Lok Sabha for a second consecutive term.

Speaker of Lok Sabha

- The presiding officer of India's Lower House of Parliament, the Lok Sabha Speaker, is the constitutional and ceremonial head of the House.

- In the absence of the Speaker, the Deputy Speaker discharges his/her functions.
- Article 93 of the Indian Constitution provides for the election of both the Speaker and the Deputy Speaker.
- Generally, a member belonging to the ruling party is elected as Speaker.

Appointment of the Lok Sabha Speaker

- There are two methods for the appointment of a Lok Sabha speaker.
- The ruling party nominates a candidate using the first and most practiced method. After a formal consultation with the opposition party, the candidate is named the Speaker of Lok Sabha for the respective assembly.
- However, in the less practiced method, the ruling and opposition party nominates one candidate from each side for the position. The Speaker is elected based on votes cast by the present MPs of the Lok Sabha on the day of the election.
- In the 72 years of the Lok Sabha Assembly, the election for the Speaker post has taken place thrice, i.e., in 1952, 1976 and 2024.

Salary and Allowances

- The Speaker of Lok Sabha is entitled to a regular salary and allowance fixed by the Parliament.
- The salary and allowances of the Speaker of Lok Sabha are charged on the Consolidated Fund of India and hence are not subject to the annual vote of Parliament.

Responsibilities and Powers

- Interpreter of constitutional provisions: The Lok Sabha Speaker is the final authority on the interpretation of the provisions of the Constitution of India, the Rules of Procedure and Conduct of Business of the Lok Sabha, and the parliamentary proceedings within the House. Their rulings on such matters are binding on the members of the House.
- Presiding over joint sessions: The Speaker presides over joint sittings of both houses of Parliament, to resolve deadlocks between the Lok Sabha and the Rajya Sabha on a particular bill.
- Maintaining order and decorum: The Speaker has the power to adjourn the House or suspend a meeting in the absence of one-tenth of the total strength of the House, known as the quorum.
- Casting vote: In the event of a tie, the Speaker is entitled to cast a deciding vote, known as the 'casting vote'
- Deciding on money bills: The Speaker has the exclusive authority to decide whether a bill is a "money bill" or not, and this decision is final and cannot be challenged.
- Disqualifying members: It is the Speaker who decides the questions of disqualification of a member of the Lok Sabha arising on the ground of defection under the provisions of the Tenth Schedule. The 52nd Amendment to the Indian Constitution vests this power in the Speaker.
- As per the Supreme Court's ruling in the Kihoto Hollohan vs Zachillhu Case of 1992, the decision of the Speaker in this regard is subject to judicial review.
- Chairing committees and groups: The Speaker acts as the ex-officio chairman of the Indian Parliamentary Group (IPG), which serves as a link between the Parliament of India and the various parliaments of the world. The Speaker also chairs the conference of presiding officers of legislative bodies in the country.
- Protecting the House's privileges: The Speaker is the guardian of the rights and privileges of the House, its committees, and its members. It depends solely on the Speaker to refer any question of privilege to the Committee of Privileges for examination, investigation, and report.

Pradhan Mantri Awas Yojana

Syllabus :GS 2/Welfare Schemes

In News

- The Cabinet has decided to further expand the Pradhan Mantri Awas Yojana and construct 3 crore additional rural and urban houses.

About Pradhan Mantri Awas Yojana (PMAY)

- The Government of India has been implementing Pradhan Mantri Awas Yojana since 2015-16 to provide assistance to the eligible rural and urban households for construction of houses with basic amenities.
- All the houses constructed under PMAY are provided the other basic amenities such as Household Toilets,

LPG connection, Electricity connection, Functional Household Tap Connection etc. through convergence with other schemes of Central Government and State Governments.
- It has two components, PMAY-U for the urban poor and PMAY-G and PMAY-R for the rural poor.

PMAY-Urban :
- The Ministry of Housing and Urban Affairs has been implementing PMAY-U under 'Housing for All' Mission since June, 2015 by giving Central assistance to implementing agencies through States/Union Territories (UTs) for providing all-weather pucca houses with basic civic amenities to all eligible urban beneficiaries.
- It is a demand driven scheme and the Government of India has not fixed any target for construction of houses.
- It is being implemented through four verticals i.e., Beneficiary Led Construction (BLC), Affordable Housing in Partnership (AHP), In-Situ Slum Redevelopment (ISSR) and Credit Linked Subsidy Scheme (CLSS).
- Government of India is providing its fixed share as Central Assistance of 1.0 lakh under ISSR, 1.5 lakh for AHP and BLC verticals of PMAY-U.

PMAY-Gramin:
- In order to achieve the target of "Housing for All" in rural areas, the Ministry of Rural Development is implementing PMAY-G with effect from 1st April 2016 to provide assistance to eligible rural households with an overall target to construct 2.95 crore pucca houses with basic amenities by March, 2024.
- Under PMAY-G, beneficiaries are provided financial Assistance of Rs.1.20 lakh in plain areas and Rs.1.30 lakh in hilly States (including North-eastern States and UTs of Jammu & Kashmir and Ladakh), difficult areas and Integrated Action Plan (IAP) districts. Additional assistance of Rs.12,000/- is extended for construction of toilets.

Importance and Progress
- In a nation where millions dream of owning a home, the Pradhan Mantri Awas Yojana (PMAY) emerges as a beacon of hope.
- It stands as a testament to the government's commitment to providing affordable housing and improving the quality of life.
- It is not just a housing scheme but a mission to empower citizens with a sense of dignity and security.
- Under PMAY, a total of 4.21 Crore houses have been completed for the eligible poor families under the housing schemes in the last 10 years.

GEOGRAPHY

Stromatolites

Syllabus: GS1/Geography

Context

- In a study, an international team reported the discovery of living shallow-marine stromatolites on Sheybarah Island in the Red Sea, Saudi Arabia.

About

- Stromatolites are layered sedimentary formations (microbialite) that are created mainly by photosynthetic microorganisms such as cyanobacteria, sulfate-reducing bacteria, and Pseudomonadota (formerly proteobacteria).
- Characteristics: The microbes are active on the surface layer of the Stromatolites, while the underlying build-up is a lithified remnant of former microbial surface communities that could be interpreted as a trace-fossil.
- Significance: Stromatolites are partially responsible for the Great Oxygenation Event, which drastically changed the composition of our atmosphere by introducing oxygen.
- Hamelin Pool is home to the most extensive living Stromatolite system in the world.

Heat Dome

Syllabus: GS1/Physical Geography; Important Geophysical Phenomena

Context

- Recently, the US based weather agency said heatwaves in general are becoming more frequent because of the heat dome and climate change.

About Heat Dome

- It is a weather phenomenon that occurs when a persistent region of high pressure traps heat over an area.
- The high-pressure system acts like a lid, preventing warm air from rising and causing the air below to warm up.

Formation

- Heat domes can arise in still and dry summer conditions, when a mass of warm air builds up, and the high pressure from the Earth's atmosphere pushes the warm air down.
- The air is then compressed, and as its net heat is now in a smaller volume, it increases in temperature.
- As the warm air attempts to rise, the high pressure above it acts as a dome, forcing the air down and causing it to get hotter and hotter, resulting in increased pressure below the dome.
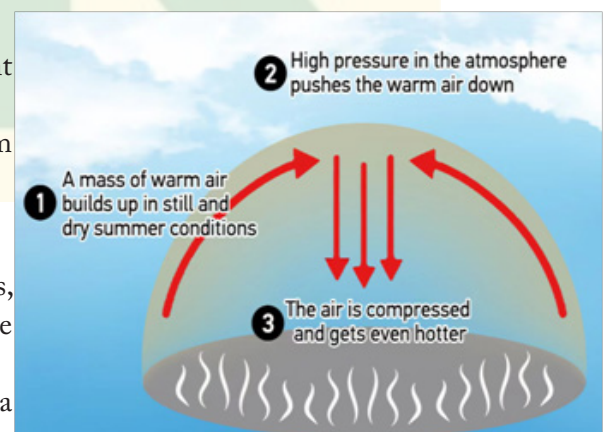
Correlation with Jet Streams

- Typically, heat domes are tied to the behaviour of the jet stream, a band of fast winds high in the atmosphere that generally runs west to east.
- Normally, the jet stream has a wavelike pattern, meandering north and then south and then north again.
- When these meanders in the jet stream become bigger, they move slower and can become stationary. That's when heat domes can occur.

Impact

- Heat domes can severely impact human health, increasing the risk of heat illnesses and deaths as people cannot cool down properly.
- It can last anywhere from days to weeks.

Maharashtra's Water Crisis

Syllabus: GS1/Geography

Context

- After the deficient monsoon last year, the Maharashtra government declared many parts of the state to be drought-hit earlier this year.
- Even when wells and reservoirs run dry in Marathwada, Maharashtra's coastal areas experience severe flooding.

About

- Much of the Marathwada region received less than 75% of its average rainfall.
- This situation is in sharp contrast with the State's coastal areas, where rainfall has often been in excess, leading to severe flooding.
- This diversity is why climate adaptation measures have been challenging to formulate and implement.

Reasons for Drought in Many Parts of Maharashtra

- Rain-shadow Region: Marathwada lies in the rain-shadow region of the Western Ghats.
- When moist winds from the Arabian Sea encounter these mountains, they rise and cool, causing heavy rainfall on the western side.
- But by the time these winds cross the Ghats and descend into Western Maharashtra and Marathwada, they lose most of their moisture, leaving Marathwada relatively much drier.

- Climate Change: Due to Climate Change, the region has experienced an increasing trend in drought severity and frequency of late.
- As a result, Marathwada and North Karnataka have emerged as the second driest regions in India after the country's northwest region.
- Type of Soil: The region has predominantly clayey black soil, locally called "regur". This soil is fertile and retains moisture well.
- However, it has a low infiltration rate, meaning that when it does rain, the water is either logged or runs off rather, but doesn't percolate down to recharge groundwater.
- Topographic Variation: The area has parallel tributaries of the Godavari and the Krishna flowing southeast.
- Each tributary flows in the valley and is separated by a gently sloping hill. The valleys have perennial groundwater while the uplands have seasonal groundwater.
- The wells in upland areas often dry up a few months after the monsoons — and this is where the water scarcity is most acute.
- Promotion of Water Intensive Crop: Long-standing government support for sugarcane pricing and sales has expanded water-intensive sugarcane irrigation, which has restricted the irrigation of more nutritious crops.
- For every one acre of sugarcane, for example, four acres of traditional crops are deprived of water.
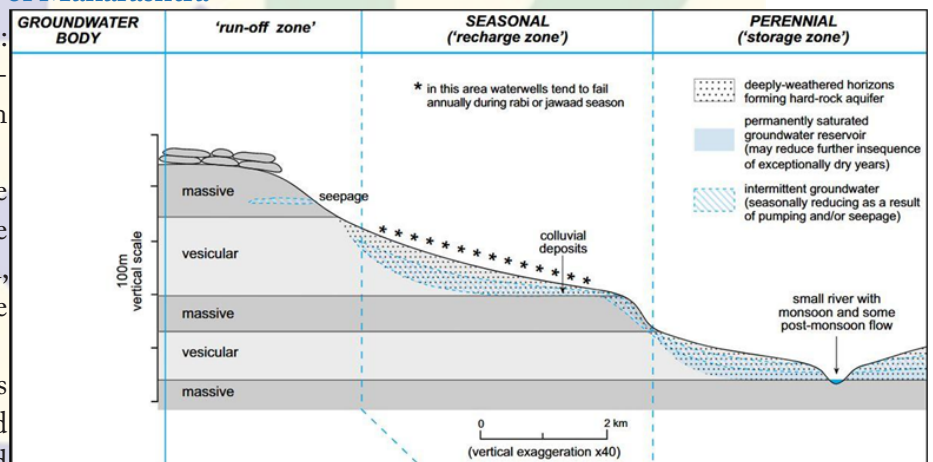
Concerns

- Sugarcane Cultivation: The agricultural practices of Marathwada are not well suited to its low-rainfall regime.
- A major contributor to the region's water crisis is sugarcane cultivation.
- Sugarcane requires about 1,500-2,500 mm of water in its growing season — outstripping what natural rainfall in the region can provide.
- While pulses and millets require four or five irrigations across the crop life, sugarcane needs to be irrigated almost every day.
- Increase in Area under Sugarcane Cultivation: The area under sugarcane along with the number of sugarcane mills increased steadily between the 1950s and the 2000s.
- The crop currently occupies 4% of the total cropped area in the region but consumes 61% of the irrigation water. As a result, the average river outflow in the upper Bhima basin has almost halved.
- 82% of the sugar grown in Maharashtra comes from low-rainfall areas.

Suggestions

- To ensure source sustainability of the drinking water sources in the region, the State government should consider pumping the water uphill and improving surface water storage for drinking.
- Funds under the Mahatma Gandhi National Rural Employment Guarantee Scheme could be used to address specific challenges, such as designing silt-trapping mechanisms and organising training programmes for farmers on periodic desilting.
- The Maharashtra Water and Irrigation Commission in 1999 recommended that sugarcane should be banned in areas that receive less than 1,000 mm of rainfall per year, but production has only increased.
- Sugarcane production — both for food and for ethanol — must move to wetter states like Uttar Pradesh, Bihar, and West Bengal, which receive more rainfall.
- In a low-rainfall region, water demand can be managed by practising water-efficient irrigation, cultivating drought-resistant crops, and diversifying livelihoods.

Conclusion

- Marathwada's water crisis is a stark reminder of a delicate balance between agricultural practices and environmental sustainability.
- By adopting more sustainable policies and agricultural practices, drought-prone regions in peninsular India can mitigate their water crisis and build a more resilient future in the face of climate change.

Lipulekh Pass

Syllabus: GS1/ Geography

In News

- Indian traders are demanding the resumption of border trade with China through Lipulekh pass which was closed during Covid-19 pandemic.

About Lipulekh Pass

- Lipulekh Pass is located in the Kumaon region of Uttarakhand, India, near the tri junction of India, China, and Nepal.
- The pass serves as a route for pilgrims traveling to Kailash Mansarovar in Tibet. It is also one of the important points connecting India and Tibet, along with other passes like Nathu La and Shipki La.
- Nepal claims that the pass lies within its territory, while India argues that it is part of the Indian state of Uttarakhand.
- In 2020, India inaugurated a road connecting Dharchula in Uttarakhand to Lipulekh Pass.

ENVIRONMENT

Biological Diversity (Amendment) Act, 2023

Syllabus: GS3/ Environment

Context

- The 2023 amendments to India's Biological Diversity Act of 2002 has caused a debate concerning biodiversity protection and India's responsibilities as a signatory to the Kunming-Montreal framework.

Background

- In 2022, at the United Nations Biodiversity Conference, countries all over the world adopted the Kunming-Montreal framework to enhance biodiversity protection and conservation.
- The countries adopted calls to protect 30 percent of all ecosystems by 2030, to protect biodiversity and genetic diversity and ensure fair and equitable sharing of benefits of traditional knowledge with the local and indigenous communities that steward this knowledge.

Amendments under scrutiny

- Under the original 2002 Act, approvals from the National Biodiversity Authority (NBA) were required before applying for intellectual property rights (IPR) related to biological resources.
- The 2023 amendments have eased this requirement, no longer mandating approval from the National Biodiversity Authority for IPR, but only requiring them to be registered with the authority before granting approvals – raising concerns about possible resource overexploitation.
- The exemption of codified traditional knowledge from the benefit-sharing mechanism and stringent regulatory oversight has also raised further concerns.
- These changes undermine the principle of fair and equitable benefit-sharing, which is central to both the original Act and Nagoya Protocol.
- By allowing AYUSH practitioners and related industries to access biological resources without prior approval, the amendments open the door to commercial exploitation without adequate compensation to local communities that hold traditional knowledge.
- Decriminalization of offenses: Previously, violations could result in imprisonment and fines, however the amendments now replace imprisonment with civil penalties.

Nagoya Protocol

– The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) is a supplementary agreement to the Convention on Biological Diversity (CBD).
– It provides a transparent legal framework for the effective implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising out of the utilization of genetic resources.
– It was adopted in 2010 in Nagoya, Japan and entered into force in 2014.

What are the Concerns?

- The amendments could lead to false claims about the cultivation of bio-resources and potential manipulation by businesses.
- It is argued that without stringent oversight, there could be widespread misuse and exploitation of local resources, adversely affecting both biodiversity and the livelihoods of local communities dependent on these resources.
- In the North East, where traditional knowledge about medicinal plants and ecological management is profound, this change could exacerbate existing socio-economic disparities and contribute to cultural erosion.

Strengthening monitoring systems

- The amendments strengthen the role of Biodiversity Management Committees (BMCs) by clarifying their functions and mandating their establishment in rural and urban areas.
- The new provisions also place a stronger emphasis on monitoring biological resources derived from foreign countries, ensuring compliance with international agreements like the Nagoya Protocol.

Way Ahead

- It is crucial that the regulatory changes are implemented with strong safeguards, robust monitoring, and active involvement of local communities to ensure that biodiversity conservation and sustainable development go hand in hand.
- Balancing economic development with conservation and equitable benefit-sharing will be essential to safeguard India's rich biological heritage for future generations.

Biological Diversity Act, 2002

– The Act was introduced to achieve the objectives of United Nations Convention on Biological Diversity (CBD), 1992.

– It provides a framework for access to biological resources and sharing the benefits arising out of such access and use. It is in line with the Nagoya Protocol on Access and Benefit Sharing.

– The act envisaged a three-tier structure to regulate the access to biological resources: The National Biodiversity Authority (NBA), The State Biodiversity Boards (SBBs) and The Biodiversity Management Committees (BMCs).

– The National Biodiversity Authority (NBA)

a. It is a Statutory Body established in 2003 to implement India's Biological Diversity Act (2002).

b. It advises the Central Government on matters relating to the conservation of biodiversity, sustainable use of its components and equitable sharing of benefits arising out of the utilization of biological resources.

c. It also advises the State Governments in the selection of areas of biodiversity importance to be notified as heritage sites and measures for the management of such heritage sites.

d. It considers requests by granting approval or otherwise for undertaking any activity referred to in Sections 3,4 and 6 of the Act.

– The State Biodiversity Boards (SBBs)

a. They are established under Section 22 of the Act and focus on advising the State Governments, subject to any guidelines issued by the Central Government, on matters relating to the conservation of biodiversity.

b. The SBBs also regulate, by granting of approvals or otherwise upon requests for commercial utilization or bio-survey and bio-utilization of any biological resource by the Indians.

– The Biodiversity Management Committees (BMCs)

a. As per the Act, the local bodies constitute the BMC within their area of jurisdiction for the purpose of promoting conservation, sustainable use and documentation of biological diversity.

State of India's Environment

Syllabus: GS3/Environment

Context

- Recently, the Centre for Science and Environment (CSE) released the State of India's Environment In Figures for 2024.

About the India's Climate Trends in 2023 and 2024

- Second-Hottest Year: India experienced its second-hottest year on record in 2023.
- Record-Breaking Temperatures: At least 102 weather stations across the country shattered their monthly highest 24-hour maximum temperature in 122 years.
- Ten of these stations were in million-plus cities.
- Twenty-seven of the weather stations with record-breaking temperatures were in Andhra Pradesh, Kerala, and Tamil Nadu.
- The country recorded its hottest minimum temperature in 122 years during 2023.
- Minimum Temperatures: Except for October, minimum temperatures remained above normal in the other five months.

- Anomalies increased from 0.57°C in July to 1.71°C in December.
- December saw the highest minimum temperature anomaly in 122 years (1.71°C above normal).
- Consistent Warmth: The average minimum temperature in the southern peninsular region remained above normal during all four months.
- The region consistently experienced its second-highest minimum temperature in 122 years.
- New Normal for Minimum Temperatures: The trend suggests a new normal for minimum temperatures, indicating warmer nights.
- The rising maximum temperature and record-breaking temperatures reported from Delhi and other states are concerning.
- The ongoing trend for minimum temperatures highlights the shift toward warmer nights.

Global Soil Partnership (GSP)

Syllabus: GS3/Environment

Context

- The Global Soil Partnership (GSP), urged for immediate action to enhance soil health, in its 12th Plenary Assembly Hosted by the Food and Agriculture Organization (FAO).

About

- The Global Soil Partnership (GSP) was established in 2012 to promote sustainable soil management.
- It brings together international, regional and national organizations that are working in the area of soil protection and sustainable management.
- GSP aims to implement the provisions of the 1982 World Soil Charter, and maintain the health of at least 50 percent of the world's soils by 2030.
- The achievements of the partnership, include:
- The establishment of an Intergovernmental Technical Panel on Soils and related international networks for different soil matters;
- The proposal for and annual celebration of UN World Soil Day (5 December) and the International Year of Soils 2015;
- Production of the Status of the World's Soil Resources 2015 report.

New Ramsar Sites: Nagi and Nakti Wetlands

Syllabus: GS3/Environment

Context

- Recently, the Nagi and Nakti Bird Sanctuaries of Bihar, have been recognised as wetlands of international importance under the Ramsar Convention.

About the Nagi and Nakti Wetlands

- These man-made wetlands are located in the Jamui district of Bihar, nestled in the Jhajha forest range.
- These are designated as bird sanctuaries in 1984 for their importance as wintering habitats for several migratory species.
- Over 20,000 birds congregate here during the winter months, including one of the largest congregations of red-crested pochard (Netta rufina) on the Indo-Gangetic plain.
- The Nagi Bird Sanctuary hosts one of the largest congregations of bar-headed geese (Anser Indicus) on the Indo-Gangetic plain.
- The wetlands and their fringes provide habitat for over 75 bird species, 33 fish, and 12 aquatic plants, and support globally threatened species, including the endangered Indian elephant (Elephas Maximus Indicus) and a vulnerable native catfish (Wallago Attu).

Recognition under the Ramsar Convention

– The Ramsar Convention (adopted in 1971 in the Iranian city of Ramsar) is an international treaty aimed at conserving wetlands.

– It provides a framework for the conservation and wise use of wetlands and their resources across its 172-member countries including India.

– Currently, the highest number of such sites is in the UK (175) followed by Mexico (144).

a. It places India joint third with China in terms of the number of such 'Ramsar Sites'.

b. With the inclusion of Nagi and Nakti Bird Sanctuaries, the total number of such wetlands in India has risen to 82.

Do You Know?

– These wetlands were originally developed for irrigation through the construction of the Nakti Dam, and have since transformed into a thriving habitat for a wide variety of flora and fauna.

– The Nagi Bird Sanctuary was created following the damming of the Nagi River, which enabled the gradual formation of water bodies with clear water and aquatic vegetation.

'Air of the Anthropocene' Initiative

Syllabus: GS3/Environment

Context

- Recently, researchers and artists joined forces for a so-called 'painting with light' international project to make invisible air pollution in India visible, demonstrating the health risks posed to the population.

About the 'Air of the Anthropocene' Initiative

- Created by artist Robin Price and an environmental scientist at the University of Birmingham to document air pollution levels around the world through photography.
- It employs a unique method known as 'light painting' to make the invisible visible.
- By using digital light painting techniques and low-cost air pollution sensors, researchers and artists have collaborated to produce photographic evidence of pollution levels.
- It has been successful in capturing pollution levels in cities across three countries – India, Ethiopia, and the UK.
- Particulate matter (PM), including PM10 and PM2.5, is a key focus of the project, with PM concentrations measured in real-time using sensors and visualized through a moving LED array.

IUCN Chief urges to Strive for High Seas Biodiversity Treaty

Syllabus :GS 3/Environment

In Context

- The director general of the International Union for Conservation of Nature (IUCN), urged countries worldwide "to strive for a fully functional High Seas Biodiversity Treaty" on World Oceans Day 2024 (8th June).

Do you know ?

– High seas are defined by international law as all parts of the ocean that aren't included in the exclusive economic zone, the territorial sea, or the internal waters of a country, or in the archipelagic waters of an archipelagic country.

– This essentially means that the high seas and associated resources are not directly owned or regulated by any country

About the Treaty

- In June 2023, the United Nations agreement on biodiversity beyond national jurisdiction or BBNJ Agreement, also known as the High Seas Treaty, was formally adopted by governments.

- It offers an updated framework to The UN Convention on the Law of the Sea that came into force in 1994.
- It establishes a funding mechanism and sets up institutional arrangements, including a Conference of the Parties and various subsidiary bodies.
- Members : According to the Alliance, 90 countries have signed the treaty, including India's neighbours Nepal and Bangladesh.
- India has neither signed nor ratified the treaty.
- However, only seven countries — Belize, Chile, Mauritius, Federated States of Micronesia, Monaco, Palau and the Seychelles — have ratified the treaty.
- This treaty focuses on four main areas:
- Marine genetic resources, including the fair and equitable sharing of benefits;
- Measures such as area-based management tools, including marine protected areas;
- Environmental impact assessments; and
- Capacity-building and the transfer of marine technology.
- Implementation status : It is open for signature by all States and regional economic integration organisations from 20 September 2023 to 20 September 2025, and will enter into force 120 days after the date of deposit of the sixtieth instrument of ratification, approval, acceptance or accession.

Key Provisions:

- Area-Based Management Tools (ABMTs): Creation of marine protected areas (MPAs) and other area-based measures to conserve biodiversity hotspots and vulnerable ecosystems.
- Environmental Impact Assessments (EIAs): Mandatory EIAs for activities in the high seas to assess and mitigate potential environmental harm.
- Marine Genetic Resources (MGRs): Establishing rules for the access, sharing, and benefit-sharing of MGRs, including the potential for monetary and non-monetary benefits to be shared with developing countries.
- Capacity Building and Technology Transfer: Provisions to assist developing countries in building their capacity to participate in high seas conservation and to access relevant technologies.

Challenges and Concerns

- Implementation: Turning the treaty's provisions into effective action on the ground will be a major challenge. The treaty is the result of more than 20 years of protracted negotiations. The details of all the major contentious provisions, including environmental impact assessments, sharing of benefits from genetic resources, and mobilisation of funds for conservation activities, are still to be worked out.
- Compliance: Ensuring that all countries adhere to the treaty's rules and regulations will be crucial.
- Financing: Securing adequate financial resources for capacity building and technology transfer is a key concern for developing countries.
- Many issues remain unaddressed, including the mechanisms for policing the protected areas, the fate of the projects that are assessed to be heavily polluting, and the resolution of disputes.

Significance

- Global Governance: Fills a major gap in international ocean governance.
- Biodiversity Conservation: Protects marine life in vast areas that are critical for the planet's health.
- Sustainable Development: Promotes sustainable use of marine resources, balancing conservation with economic interests.
- Equity: Addresses concerns of developing countries regarding access and benefit-sharing of marine resources.

Why the High Seas Treaty is Important for India?

- Marine Biodiversity: India has a long coastline and relies on marine resources for food security and livelihoods. The treaty helps protect the biodiversity of the high seas, which is connected to India's own marine ecosystems.
- Blue Economy: The treaty can facilitate India's participation in the emerging blue economy, which includes activities like deep-sea mining and bioprospecting.

- Global Leadership: India can play a significant role in shaping the implementation of the treaty and promoting sustainable ocean governance.

Conclusion and Way Forward

- The treaty has the potential to contribute to the conservation and sustainable use of marine biodiversity by playing a coordinating role and strengthening, enhancing and promoting cooperation among existing legal instruments and frameworks and relevant global, regional, subregional and sectoral bodies.
- This will help maintain its potential to provide for current and future generations.
- Therefore All signing nations should be supported in the ratification process to bring this treaty into force, moving almost half of the planet's surface into better regulation through international law.
- the number of ratifying countries for the global agreement on unsustainable fisheries' practices and subsidies should increase, so that the world's fish stocks are not overexploited.

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

– UNCLOS, adopted in 1982 and effective since 1994, is a comprehensive international treaty that sets the legal framework for all activities in the oceans and seas. It replaced the older, less comprehensive quad-treaty from 1958. India became a party to UNCLOS in 1995.

Key Features:

– Marine Zones: UNCLOS divides marine areas into five main zones, each with varying degrees of national control and rights:
a. Internal Waters: Fully under national sovereignty, like land territory.
b. Territorial Sea: Extends 12 nautical miles from the baseline (coast). Coastal states have sovereignty but must allow "innocent passage" of foreign ships.
c. Contiguous Zone: Extends 24 nautical miles from the baseline. States have limited control to prevent or punish infringements of customs, fiscal, immigration, or sanitary laws.
d. Exclusive Economic Zone (EEZ): Extends 200 nautical miles from the baseline. Coastal states have sovereign rights over resources (fisheries, oil, gas, etc.) and certain economic activities.
e. Continental Shelf: Can extend beyond 200 nautical miles if the seabed is a natural prolongation of the land territory. Coastal states have rights over non-living resources (minerals, etc.) of the shelf.
f. High Seas (ABNJ): Areas beyond national jurisdiction. Open to all states, but subject to UNCLOS rules on freedom of navigation, overflight, fishing, etc.

Wild Boars

Syllabus: GS3/ Species in News

In News

- Kerala faces a growing wild boar menace, with the animals destroying crops, attacking farmers, and causing road accidents.

Problem caused by Wild Boars

- This poses a significant threat to the state's food security and agricultural sector.
- The man-animal conflict has claimed 990 lives and injured 7,500 people since 2016. The state government provides financial assistance.

About Wild Boars

- Scientific Name : S. scrofa
- It has by far the largest range of all pigs.
- It is sometimes called the European wild boar.
- The animals are swift, nocturnal, and omnivorous and are good swimmers.
- They possess sharp tusks, and, although they are normally unaggressive, they can be dangerous.
- Habitat and Distribution : It occupies a wide variety of temperate and tropical habitats, from semi-desert to tropical rainforests, temperate woodlands, grasslands and reed jungles; often venturing onto agricultural land to forage. It is found in a variety of habitats.

- It is the largest of the wild pigs and is native to forests ranging from western and northern Europe and North Africa to India, the Andaman Islands, and China.
- IUCN Status: Least Concern.

Way Ahead

- Exploring additional measures like building moats, erecting power fences, and ensuring fodder and water availability deep inside forests to prevent wildlife from venturing near human habitats. Kerala has also declared human-wildlife conflict a state-specific disaster.

Lack of Geo-conservation India

Syllabus: GS3/Biodiversity and Conservation

Context

- Despite international progress in the field of geo-conservation India has not formulated any mechanism for geo-conservation.
- The Geological Survey of India (GSI) has notified 34 geological monuments, it lacks the regulatory powers to implement the preservation measures.

What is Geo-conservation?

- Geo-conservation refers to the efforts and practices aimed at preserving and protecting geological features, processes, and sites of scientific, cultural, educational, or aesthetic value.
- It involves the conservation and management of geological diversity, similar to how biodiversity conservation aims to protect different species and ecosystems.

Need for Geo-conservation in India?

- Rich Geological Diversity: India is geologically diverse, with a wide range of geological formations, landscapes, and mineral resources.
- Protecting these resources ensures the preservation of unique geological features that contribute to scientific research, education, and understanding of Earth's history.
- Cultural and Historical Significance: Many geological sites in India hold cultural and historical significance.
- For example, the fossil beds in the Siwalik Hills have provided important insights into India's prehistoric past. Protecting such sites helps preserve cultural heritage and indigenous knowledge related to geology.
- Natural Hazards Management: Understanding geological processes and landscapes is crucial for managing natural hazards such as earthquakes, landslides, and floods.
- Tourism and Recreation: India's geological diversity attracts tourists interested in exploring unique landscapes, rock formations, caves, and mineralogical sites.
- Environmental Sustainability: Many geological resources, such as groundwater and minerals, are essential for sustainable development.
- Geo-conservation promotes responsible management of these resources to ensure their availability for future generations.

Geo-heritage Sites

- Geo-heritage sites are educational spaces where people acquire much needed geological literacy.
- The importance of the shared geological heritage of our planet was first recognised in 1991 at a UNESCO-sponsored event, 'First International Symposium on the Conservation of our Geological Heritage'.
- Geo-heritage sites in many countries such as Canada, China, Spain, the United States and the United Kingdom have been developed as national parks.
- Today, there are 169 Global Geoparks across 44 countries. Thailand and Vietnam have also implemented laws to conserve their geological and natural heritage.
- Though a signatory, India has no such legislation or policy for geo-heritage conservation.

Attempts by Government to Conserve Geo-heritage sites

- In 2009, there was a attempt to constitute a National Commission for Heritage Sites through a Bill introduced in the Rajya Sabha.

- Though it was eventually referred to the Standing Committee, the government backtracked on it for some unstated reasons and the Bill was withdrawn.
- The Bill was meant to constitute a national commission to implement the stipulations of the UNESCO World Heritage Convention 1972 and to create a national roster of heritage sites.
- More recently, in 2022, the Ministry of Mines has prepared a draft Bill for preservation and maintenance, but no further progress on this has been heard.

Way Ahead

- India needs the following at the earliest:
- create an inventory of all prospective geo-sites in the country (in addition to the 34 sites identified by the GSI);
- frame geo-conservation legislation for the country along the lines of the Biological Diversity Act 2002;
- and, have a 'National Geo-Conservation Authority' along the lines of the National Biodiversity Authority, with independent observers, ensuring that the establishment will not encroach on the autonomy of researchers.
- By conserving geological sites and resources, India can better manage its natural environment and contribute to global efforts towards environmental sustainability.

Premature Deaths Related to PM2.5 Exposure

Syllabus: GS3/Environmental Pollution

Context

- A new study (published in Journal Environment International) has found that the fine Particulate Matter (PM 2.5) led to 135 million premature deaths worldwide between 1980 and 2020.

Particulate Matters

- It is a term for a mixture of solid particles and liquid droplets found in the air that comes in many sizes and shapes and can be made up of hundreds of different chemicals.
- Some particles, known as primary particles, are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks or fires.
- Others form in complicated reactions in the atmosphere of chemicals such as sulphur dioxides and nitrogen oxides that are emitted from power plants, industries and automobiles.

Size of Particulate Matters

- Particles that are 10 micrometres in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs.
- The size of particles is directly linked to their potential for causing health problems.
- PM10: inhalable particles, with diameters that are generally 10 micrometres and smaller.
- PM2.5: fine inhalable particles, with diameters that are generally 2.5 micrometres and smaller.

PM2.5 and Health Impacts

- When inhaled, Particulate Matters can cause a wide range of respiratory disorders. Continuous exposure to these can cause asthma, chronic obstructive pulmonary disease and any type of bronchitis.
- Particulate matter can penetrate deep inside the lungs and damage it.
- Any bacteria or virus can now attack the lungs and this could even lead to serious life-threatening infections.
- Particulate Matter can also cause chest tightening, watery eyes, sneezing, and running nose.

Breakdown of Premature Deaths

- From 1980 to 2020, a third of premature deaths were associated with stroke (33.3%), another third with ischemic heart disease (32.7%) and the remaining deaths were due to chronic obstructive pulmonary disease, lower respiratory infections and lung cancer.

Do You Know?

According to the WHO, almost 3.7 million premature deaths annually are attributed to outdoor air pollution. About 80% of those deaths are due to heart disease and stroke, while another 20% are from respiratory illnesses and cancers related to exposure to PM2.5.

Geographical Disparity in Air Pollution-Related Deaths

- Asia is the most affected region, withan estimated 98.1 million premature deaths attributed to PM2.5 pollution between 1980 and 2020.
- China and India led with 49 million and 26.1 million deaths, respectively.
- Other South Asian nations like Pakistan, Bangladesh, Indonesia and Japan also suffered significant losses due to PM2.5 exposure.

Indian Scenario

- India, with 18% of the world's population, has a disproportionately high 26% of the global premature deaths and disease burden due to air pollution.
- More than 23 lakh people died prematurely due to pollution in India in 2019.
- Of them, 73% of deaths occurred due to air pollution, the largest number of such deaths globally.
- In Delhi, the national capital, the number of deaths attributable to PM2.5 was 106 out of 1,00,000 people in 2019, above the global median 58 per 1,00,000 people.

Role of Climate Variability Phenomena

- The research highlighted the role of climate variability phenomena like El Nino-Southern Oscillation, Indian Ocean Dipole and North Atlantic Oscillation in exacerbating PM2.5 pollution levels, and collectively caused approximately 7,000 additional premature deaths annually.
- The Indian Ocean Dipole had the largest impact on the number of deaths, followed by the North Atlantic Oscillation and then El Nino.

Effects of Climate Change on Human Health

- Changes in climate patterns can make air pollution worse.
- The effects of climate change and the environment on human health are not lesser than those of genomics and lifestyle patterns and they have been increasing over the past decades.

Related Efforts By India

- National Clean Air Programme (NCAP): Launched in 2019 with targets to achieve 20% to 30% reduction in concentrations of PM10 and PM2.5 by the year 2024, keeping 2017 as the base year for comparison of concentration.
- Decarbonisation Efforts: A report suggests that decarbonising faster can save India 200,000 deaths from particulate matters.
- The report analysed health impacts stemming from exposure to particulate matter under various policy pathways to meet Paris Agreement 2015 targets.
- Green Infrastructure: Cities are reimagining cityscapes with verdant green corridors and tree-lined boulevards, weaving greenery seamlessly into the urban fabric.
- Planting certain species can create a natural air-purifying barrier, absorbing harmful substances such as hydrocarbons and aromatic compounds.
- Vehicle Scrappage Policy: It aims to replace old vehicles with modern and new vehicles on Indian roads, and is expected to reduce pollution, create job opportunities and boost demand for new vehicles.
- Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles (FAME) Scheme: It aims to reduce pollution caused by diesel and petrol-operated vehicles and to promote electric and hybrid vehicles in India.
- The FAME phase II scheme has been extended for two years to drive greater adoption of the scheme.

Gandhi Sagar Sanctuary

Syllabus :GS 3/Environment

In News

- The Madhya Pradesh government has completed preparations for its ambitious cheetah reintroduction project at Gandhi Sagar Wildlife Sanctuary, which is slated to be the second home for cheetahs in India after Kuno National Park

About Gandhi Sagar Sanctuary

- Gandhisagar sanctuary is located on western border of Malwa plateaus along the banks of the mighty Chambal river.
- Total area of Gandhi Sagar Sanctuary is 368.62 sq. km
- It spreads into two districts Mandsaur and Neemuch
- Its Northern boundary is the Interstate boundary of M.P. and Rajasthan.
- It is known for some rare wildlife species like Wild Dogs (Dholes), Chinkara, Leopard, Otter, Mugger crocodile.

SCIENCE & TECHNOLOGY

Virus-like particles (VLPs)

Syllabus: GS3/Science and Technology

Context

- Scientists at the Institute of Advanced Virology (IAV), have developed a novel way of generating non-infectious Nipah virus-like particles (VLPs) in the laboratory.

About

- Scientists generated "HiBiT-tagged" Nipah virus-like particles (NiV-VLPs) using plasmid-based expression systems, encoding the NiV structural proteins G, F, and M.
- Virus-like particles (VLPs) are molecules that closely resemble viruses, but are non-infectious because they contain no viral genetic material.
- The genome of the NiV encodes six major proteins: glycoprotein (G), fusion protein (F), matrix (M), nucleocapsid (N), long polymerase (L) and phosphoprotein (P).

Nipah virus

- The zoonotic virus Nipah is a highly pathogenic paramyxovirus, with a fatality rate of up to 80% in affected humans.
- Fruit bats of the Pteropodidae family are the natural host of Nipah virus.
- It can be transmitted to humans from animals (such as bats or pigs), or contaminated foods and can also be transmitted directly from human-to-human.

Phenome India-CSIR Health Cohort Knowledgebase' (PI-CheCK)

Syllabus: GS3/ Science and Technology

Context

- The Council of Scientific and Industrial Research (CSIR) announced the conclusion of the first phase of its longitudinal health monitoring project, the 'Phenome India-CSIR Health Cohort Knowledgebase' (PI-CheCK).

About

- The PI-CHeCK project aims to assess risk factors in non-communicable (cardio-metabolic) diseases within the Indian populace.
- This health cohort study will collect comprehensive data, including clinical questionnaires, lifestyle and dietary habits, body composition measurements, scanning-based assessments, blood biochemistry, and molecular assay-based data.

Council of Scientific and Industrial Research (CSIR)

– CSIR is a R&D organization known for its cutting edge R&D knowledge base in diverse S&T areas.
– It was established as an autonomous body in 1942 and Headquartered in New Delhi.
– CSIR has a dynamic network of 37 national laboratories, 39 outreach centers, 1 Innovation Complexes, and three units with a pan-India presence.
– The CSIR laboratories specialize in topics ranging from the genome to geology, food to fuel, minerals to materials, and so on.

PraVaHa

Syllabus: GS3/Science and Technology

Context

- The Indian Space Research Organisation (ISRO) has developed Computational Fluid Dynamics (CFD) software named Parallel RANS Solver for Aerospace Vehicle Aero-thermo-dynamic Analysis (PraVaHa).

About

- It can simulate external and internal flows on launch vehicles, winged and non winged re-entry vehicles.
- Any aerospace vehicle while moving through the Earth's atmosphere during launch or re-entry is subjected to severe aerodynamic and aerothermal loads in terms of external pressure and heat flux.
- PraVaHa has been used extensively in the Gaganyaan program for aerodynamic analysis of human-rated launch vehicles, viz, HLVM3, Crew Escape System (CES), and CM.
- Currently, the PraVaHa code is operational to simulate airflow for Perfect Gas & Real Gas conditions.

'Green-beard' Genes

Syllabus: GS3/Science and Technology

Context

- Scientists have gained valuable new insights into natural altruism by studying the amoeba Dictyostelium discoideum through 'Green-beard' genes.

About

- Green-beard genes allow the individuals bearing them to recognise and preferentially cooperate with each other.
- Alternatively, a green-beard gene could provoke individuals to behave harmfully towards those carrying a different version of the gene.
- Thus, green-beard genes encode some kind of tag that helps the genome to know their identity (i.e. self-recognition).
- Dictyostelium discoideum is a free-living, fast-growing, unicellular amoeba.
- In the wild, it feeds on bacteria that grow on decaying vegetation.

Hydroxyurea to treat sickle cell disease

Syllabus :GS 3/S&T

In News

- The Indian Council of Medical Research (ICMR) invited Expressions of Interest (EoI) from eligible organisations for the "joint development and commercialisation" of low dose or paediatric oral formulation of hydroxyurea to treat sickle cell disease in India.

About Sickle Cell Disease

- It is a group of inherited red blood cell disorders.
- Red blood cells contain hemoglobin, a protein that carries oxygen. Healthy red blood cells are round, and they move through small blood vessels to carry oxygen to all parts of the body.
- In someone who has SCD, the hemoglobin is abnormal, which causes the red blood cells to become hard and sticky and look like a C-shaped farm tool called a sickle.
- India has the highest prevalence of sickle cell disease in South Asia, and over 20 million sickle cell affected individuals reside in the country.
- Treatment : Hydroxyurea, a myelosuppressive agent, is an effective drug for treating patients of sickle cell disease, and thalassemia.
- In India, according to the National Health Mission's guidelines, healthcare providers initiate hydroxyurea therapy to only symptomatic sickle cell disease patients among children both because of the lack of availability of paediatric doses as well as the fear of toxicity.
- Mission : The National Sickle Cell Anaemia Elimination Program, introduced in the Union Budget 2023, focuses on addressing the significant health challenges posed by sickle cell disease.

- The program is executed in a mission mode as part of the National Health Mission (NHM), aims to eliminate sickle cell genetic transmission by the year 2047, showing a long-term commitment to eradicating the disease.

Center to Fund Startups for Developing Technical Textiles

Syllabus: GS3/Science and Technology

Context

- The Union textiles ministry is planning to give grants of up to 50 lakh each to 150 startups that are engaged in making technical textiles.

What are Technical Textiles?

- Technical textiles are defined as textile materials and products used primarily for their technical performance and functional properties rather than their aesthetic or decorative characteristics.
- They are manufactured using natural as well as man-made fibers such as Nomex, Kevlar, Spandex, Twaron that exhibit enhanced functional properties such as higher tenacity, excellent insulation, improved thermal resistance etc.
- Application: Healthcare, construction, automobile, aerospace, sports, defense, agriculture etc.

Indian Technical Textiles Industry

- The Indian technical textiles market is the 5th largest in the world and stood at $21.95 billion in 2021-22, with production amounting to $19.49 billion and imports $2.46 billion.
- Technical textile accounts for approximately 13% of India's total textile and apparel market and contributes to India's GDP at 0.7%.
- India's exports of technical textile products increased to US$ 2.85 billion in 2021-22, while imports were US$ 2.46 billion in 2021-22.

Challenges faced by Technical textile industry

- Lack of Research & Development: The industry is dominated by Small and Medium Enterprises, which lack the financial resources to invest in advanced technology and R&D.
- Lack of Awareness: Benefits of technical textiles are still unknown to the larger masses of the country. This is the result of lack of marketing and basic knowledge about these products.
- Development of Skilled Workforce: Technical textiles comprises multiple processes to manufacture different products which require different and high levels of skill sets from workers which is currently absent in the domestic industry.

12 segments of technical textiles

Indutech
Industrial brushes, computer printer ribbon, composites, ropes and cordages, coated abrasives, drive belts, conveyor belts, etc.

Mobiltech
Seat cover, upholstery, tyre cord fabrics, tufted carpet, insulation felts, seat belts, cabin filters, helmets, etc.

Sportech
Sports nets, parachutes, artificial grass and turfs, sport composites, hot-air balloons sleeping bags, etc.

Buildtech
Floor and wall coverings, scaffolding nets, awnings & canopies, etc.

Hometech
Pillows, mattresses, blinds, mosquito nets, carpet backing cloth, filters, vacuum cleaner consumables, etc.

Meditech
Contact lenses, baby diapers, sanitary napkins, surgical sutures, surgical disposables, etc.

Clothtech
Interlinings, labels, elastic narrow fabrics, shoe laces, etc.

Agrotech
Bird protection nets, crop covers, fishing nets, shade nets, mulch mats, etc.

Steps taken by government

- National Technical Textile Mission (NTTM): It was launched in 2020 with the aim to position India as a global leader in technical textiles by promoting research, innovation, and the use of technical textiles in various sectors.
- Production Linked Incentive (PLI) scheme for textiles was introduced to encourage domestic manufacturing of technical textiles.
- New Harmonized System of Nomenclature (HSN) Codes: In addition to the 207 recognised technical textiles items in 2019, 30+ additional HSN Codes dedicated to technical textiles products:
- PM MITRA Parks scheme: The project focuses on the development of integrated large-scale and modern industrial infrastructure on the entire textile value chain.
- Standards in technical textiles: Development of more than 500 BIS standards for technical textiles.
- Mandatory usage of technical textiles: 119 technical textiles products have been identified for mandatory usage across ten Central ministries/departments to derive the benefits of technical textiles in various fields of applications.

Way Ahead

- The technological textile business in India has enormous potential and is a rising sector that will contribute considerably to the development of a new and developed India by 2047.
- To position India as a leading and rising nation for technological textiles, the emphasis should be on boosting R&D in significant fields, Marketing and brand promotion, increasing cost competitiveness, governmental assistance, etc.

Reverse Transcriptase Enzyme

Syllabus: GS3/Science and Technology

Context

- Recently, It has been found that the Reverse Transcriptase played a pivotal role in both diagnostic testing and scientific research related to the SARS-CoV-2 virus.

About Reverse Transcriptase Enzyme (aka RNA-dependent DNA Polymerase)

- It is a DNA polymerase enzyme that transcribes single-stranded RNA into DNA.
- It is able to synthesise a double helix DNA once the RNA has been reverse transcribed in a first step into a single-strand DNA.
- In the 1970s, the Reverse Transcriptase enzyme challenged the 'Central Dogma' which stated that hereditary information flowed only from DNA to RNA and then to protein, and showed that RNA could give 'rise' to DNA.
- Clinicians use reverse transcriptase to convert RNA to DNA, allowing them to estimate the amount of viral material in a given sample.
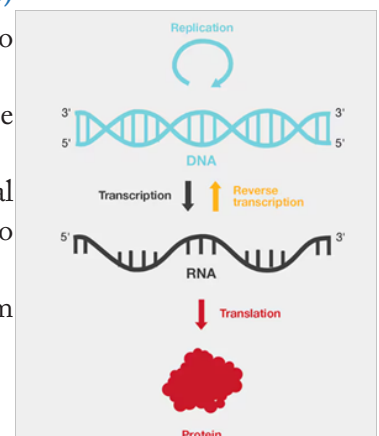
Applications: Molecular Biology Research

- Cells can create DNA copies from RNA using reverse transcriptase.

- Researchers could now reverse-transcribe messenger RNAs into DNA fragments, clone that DNA into bacterial vectors, and study the function of corresponding genes.

In Diagnostics

- Clinicians used reverse transcriptase for RNA-to-DNA conversion in diagnostics, especially for RNA viruses , including Hepatitis B, Human Immunodeficiency Virus (HIV), and Human Endogenous Retroviruses and Neuropsychiatric Diseases.
- COVID-19 Testing: During the COVID-19 pandemic, reverse transcriptase became crucial for developing reliable diagnostic tests to detect the SARS-CoV-2 virus.
- These tests have been instrumental in tracking the virus's spread, enabling surveillance efforts, and facilitating vaccine development.
- Klebsiella Pneumoniae: Recent research has revealed that the Bacterium Klebsiella Pneumoniae uses reverse transcriptase to cope with bacteriophage infections.
- When infected by bacteriophages, K. pneumoniae employs non-coding RNA with specific motifs to bind reverse transcriptase.
- It creates DNA copies containing the gene for a protein called Neo.
- Neo protein puts the bacterial cell in suspended animation, blocking replication and stopping the bacteriophage in its tracks.

Nanoparticles

Syllabus: GS3/Science and TEchnology

Context

- The Indian Institute of Technology Madras (IIT Madras) Researchers have shown that common minerals can be broken by water microdroplets to make corresponding nanoparticles.

What are Nanoparticles?

- A nanoparticle is a small particle that ranges between 1 to 100 nanometres in size. Undetectable by the human eye, nanoparticles can exhibit significantly different physical and chemical properties to their larger material counterparts.
  - o   Applications of Nanoparticles;
- Creating fluorescent biological labels for important biological markers and molecules in research and diagnosis of diseases,
- Drug delivery systems
- Gene delivery systems in gene therapy
- For biological detection of disease causing organisms and diagnosis
- Isolation and purification of biological molecules and cells in research.

TRISHNA Mission

Syllabus: GS3/Science and Technology

Context

- Recently, the Indian Space Research Organisation (ISRO) provided details on the Indo-French Thermal Infrared Imaging Satellite for High-resolution Natural Resource Assessment (TRISHNA) Mission.

About the TRISHNA Mission

- It is a collaborative endeavour between the ISRO and the French National Space Agency CNES.
- It is engineered to deliver high spatial and high temporal resolution monitoring of Earth's surface temperature, emissivity, biophysical and radiation variables for surface energy budgeting at regional to global scale.

Objectives of the Mission

- Detailed monitoring of the energy and water budgets of the continental biosphere for quantifying terrestrial water stress and water use and high-resolution observation of water quality and dynamics in coastal and inland waters.

- It addresses critical water and food security challenges, focusing on the impacts of human-induced climate change and efficient water resource management through evapotranspiration monitoring.
- It also aims to help in a comprehensive assessment of urban heat islands, detection of thermal anomalies linked to volcanic activity and geothermal resources, and precise monitoring of snow-melt runoff and glacier dynamics.
- It aims to provide valuable data on aerosol optical depth, atmospheric water vapour, and cloud cover.
- For climate monitoring, it aims to track key indicators such as droughts, permafrost changes, and evapotranspiration rates.

Milgromian Dynamics (MOND)Theory

Syllabus :GS 3/S&T

In News

- It has been observed that Milgromian dynamics(MOND)Theory fails to explain small bodies in the distant outer Solar System.

About Milgromian dynamics (MOND)Theory

- It is proposed by Israeli physicist Mordehai Milgrom in 1982
- It suggests a modification to Newtonian dynamics to explain certain astrophysical phenomena without the need for dark matter.
- The main postulate of MOND is that gravity starts behaving differently to what Newton expected when it becomes very weak, as at the edges of galaxies.
- It is quite successful at predicting galaxy rotation without any dark matter, and it has a few other successes.
- Limitations: MOND only changes the behaviour of gravity at low accelerations, not at a specific distance from an object.
- Newtonian gravity is strongly preferred over MOND on length scales below about a light year.
- Mond also fails on scales larger than galaxies: it cannot explain the motions within galaxy clusters.
- It cannot provide enough gravity either, at least in the central regions of galaxy clusters

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Do you know?

– Dark matter was first proposed by Fritz Zwicky in the 1930s to account for the random motions of galaxies within the Coma Cluster, which requires more gravity to hold it together than the visible mass can provide.
– Dark matter is stuff in space that has gravity, but it is invisible.

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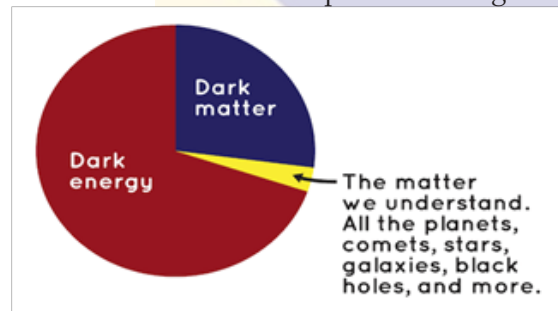
microRNAs for Detecting Breast Cancer

Syllabus: GS3/Science and Technology

Context

- The CSIR-Centre for Cellular and Molecular Biology (CCMB) scientists have identified a potentially cost-effective and non-invasive method to detect various kinds of breast cancer from just a drop of blood.

About

- microRNAs (miRNAs): Most of the cellular processes in a body are regulated by miRNAs molecules which are 23-25 base small non-coding RNA molecules.
- The researchers have analysed microRNA signatures in human cancer samples and identified miRNAs that are associated with invasive breast cancer.

- 107 qualified to be potential biomarkers for the stratification of different types, grades and stages of invasive ductal carcinoma.
- Biomarkers: Cancer cells shed DNA/RNA into the circulation called 'Circulating Nucleic Acids (CNAs) and are detectable in plasma or other body fluids of cancer patients to identify the earlier stages of cancer development.
- Based on this principle, the identified biomarkers could be made into a liquid biopsy system where cancer could be detected from one drop of blood.
- Significance: The study has paved the way for the application of miRNAs as biomarkers and would open up new vistas in developing a refined, cost-effective, and non-invasive method in breast cancer diagnosis.
- The discovery of biomarkers has become essential for early detection, classification, and monitoring of cancer.

Plutonium Isotope Fission

Syllabus :GS 3/Science and Technology

In News

- Recently, Nuclear study provided a major update on plutonium isotope fission .

About Plutonium (Pu)

- It is a silvery-gray, radioactive metal that becomes yellowish when exposed to air.
- It has five "common" isotopes, Pu-238, Pu-239, Pu-240, Pu-241, and Pu-242.
- All of the more common isotopes of plutonium are "fissionable"—which means the atom's nucleus can easily split apart if it is struck by a neutron.
- Applications : The various isotopes of plutonium have been used in a number of applications.
- Plutonium-239 contains the highest quantities of fissile material, and is notably one of the primary fuels used in nuclear weapons.
- Pu-239 is produced when U-238 is exposed to neutrons of certain energy in a reactor.
- Plutonium-238 has more benign applications and has been used to power batteries for some heart pacemakers, as well as provide a long-lived heat source to power NASA space missions.
- Developments: Researchers have published a unique measurement of the energy of neutrons produced by Pu-240 fission.
- Pu-240 undergoes spontaneous fission, emitting alpha particles. Due to this behavior, it is considered a contaminant in weapons-grade plutonium, where its composition by weight is restricted to under 7%.
- Progress in India : In March 2024, India embarked on the second stage of its nuclear power program by initiating the core-loading process of the prototype fast breeder reactor (PFBR) in Kalpakkam.
- In the initial stage, uranium isotopes serve as nuclear fuel in pressurized heavy-water reactors. These reactors produce plutonium-239 (Pu-239) along with energy.
- The second stage focuses more on plutonium fission. When a Pu-239 nucleus captures a neutron, it has a 27-38% chance of becoming Pu-240 instead of undergoing fission.
- Pu-240 is present in many nuclear reactors and even in the fallout of nuclear weapon tests. When Pu-240 captures a neutron, it often transforms into Pu-241.
- However, if it does undergo fission, there remains uncertainty about the energy carried away by its fission products.

'Multi-omics' Approach to Tackle Diseases

Syllabus :GS 3/Science and Technology

In News

- In the last decade, India's use of genomics has undergone a significant transformation

About

- Efforts are underway to create new datasets to address individual health problems, ranging from the age-old scourge of tuberculosis to cancers, rare genetic disorders in children, and even antimicrobial resistance.

- Researchers have also been able to extract more value from these using artificial intelligence and machine learning, and by combining their contents with other extensive datasets on proteins (proteomics), gene expression in cells (transcriptomics), and chemical changes that regulate gene expression (epigenomics) to develop a 'multi-omics' approach to tackle diseases.

Disease-Specific Efforts

- Tuberculosis : The Indian Tuberculosis Genomic Surveillance Consortium (InTGS) comprises 10 Report India sites covering eight states for tuberculosis, with the goal of sequencing around 32,000 tuberculosis clinical strains from active patients, and develop a centralised biological repository of clinical Mycobacterium tuberculosis strains in India.
- Goals include mapping genetic diversity, correlating mutations with drug resistance, and optimising treatment outcomes.
- Rare genetic disorders : India has also launched a pan-country mission for Paediatric Rare Genetic Disorders (PRaGeD)
- Mission PRaGeD is planning to create awareness, perform genetic diagnosis, discover and characterise new genes or variants, provide counselling, and develop new therapies for rare genetic diseases that afflict India's children.
- Focuses on genetic diagnosis, new gene discovery, and therapy development for pediatric rare genetic diseases.
- Integrates data from IndiGen to enhance genetic analysis and management.
- Cancers: The Indian Cancer Genome Consortium (ICGC-India), part of the larger International Cancer Genome Consortium (ICGC) and supported by the Department of Biotechnology, plans to characterise genomic abnormalities in different types of cancers in Indian patients and identify population-specific genetic variations that are linked to cancer risk and treatment response.
- Aims to identify biomarkers, treatment targets, and personalize treatment strategies through population-wide genome sequencing.
- The Indian Cancer Genome Atlas project, a not-for-profit public-private-philanthropic initiative, is trying to create a comprehensive catalogue of genomic alterations across various cancer types prevalent in India.
- Antimicrobial Resistance: Genomics and metagenomics used to analyze antimicrobial resistance, particularly in slow-growing microbes like tuberculosis.
- Facilitates targeted antibiotic therapies by identifying resistance profiles without the need for lab culturing.

Other Developments

– In January 2024, the Department of Biotechnology completed sequencing 10,000 genomes from 99 ethnic groups under its 'Genome India' project.

A. This national initiative aims to develop a reference genome for Indian people, which will help design genome-wide and disease-specific 'genetic chips' for low-cost diagnostics and research.

– In October 2020, the Council for Scientific and Industrial Research (CSIR) had reportedly sequenced the entire genomes of 1,008 individuals in India representing diverse ethnic groups in six months.

A. This effort was part of a mission called 'IndiGen'— to create a pilot dataset with which researchers could analyse the epidemiology of genetic diseases and help develop affordable screening approaches, optimise treatment, and minimise adverse events for them.

Importance

- AI and ML algorithms assist in analysing extensive genomic datasets for predicting disease risks, early cancer detection, and treatment stratification.
- Multi-omics approach integrates genomics with proteomics, transcriptomics, and epigenomics to enhance disease understanding and therapeutic development.
- With the rapid expansion of AI, it is now easy to access multi-omics and analyse Big Data products rapidly, even with only standard computational facilities and multi-omics is today an emerging technology in the field of clinical science in India.

Gene Therapy For Sickle Cell Disease

Syllabus: GS3/S&T

Context

- Recently, the officials of the Union Tribal Affairs Ministry informed that India is getting closer to developing a gene therapy for sickle cell disease, a genetic blood disorder with a high prevalence rate among the Scheduled Tribes.

About the Sickle Cell Disease

- It is a genetic blood disorder characterised by abnormal haemoglobin, leading to misshapen red blood cells (sickled cells) causing blockages in blood vessels, resulting in severe pain, organ damage, and life-threatening complications.
- The mutation in haemoglobin causes red blood cells to take on a crescent shape, impairing oxygen delivery.
- Vaso-occlusive events (VOEs) or crises result from blocked blood flow, leading to pain and organ damage.
- It primarily affects African Americans and Hispanic Americans.
- While traditional treatments like hydroxyurea and blood transfusions alleviate symptoms, they don't provide a cure.

Promise of Gene Therapy

- Casgevy: The FDA-approved cell-based gene therapy, Casgevy, utilises CRISPR/Cas9 technology.
- Hematopoietic stem cells are modified using CRISPR/Cas9 to increase foetal haemoglobin (HbF) production.
- Elevated HbF levels prevent red blood cell sickling.
- Patients with recurrent VOEs benefit from this innovative treatment.
- Lyfgenia: Another cell-based gene therapy, Lyfgenia, complements Casgevy in treating SCD.
- Exa-cel: This CRISPR-based treatment, developed by Vertex and CRISPR Therapeutics, functionally cured SCD for at least one year.

Challenges and Future Directions

- Cost-effectiveness remains a challenge for gene therapies.
- Screening vulnerable tribal populations and involving ground-level healthcare workers are crucial steps in this mission.
- India, in its Union Budget 2023, introduced the National Sickle Cell Anaemia Elimination Program to address the risks posed by sickle cell disease.
- It is executed in a mission mode as part of the National Health Mission (NHM), aims to eliminate sickle cell genetic transmission by the year 2047, showing a long-term commitment to eradicating the disease.

Portable Optical Atomic Clock

Syllabus: GS3/Science and Technology

Context

- A study recently published in the journal Nature introduced a kind of portable optical atomic clock that can be used onboard ships.

Evolution of Atomic ClocksTraditional atomic clocks, such as those based on Caesium-133, are highly stable and have been used for decades to define the duration of a second. These clocks operate at microwave frequencies, ticking billions of times per second. Despite their precision, they are bulky, power-intensive, fragile, and expensive, limiting their use to large research facilities. Optical Atomic ClocksIt is the next generation of atomic clocks that operate at optical frequencies, ticking tens of trillions of times per second. These clocks can remain precise to 10 femtoseconds after a day, or within a second after 50 billion years. However, these clocks are even more complex and delicate than their microwave counterparts.

Portable Optical Atomic Clocks

- It uses an iodine-based system. It uses molecular iodine, which has convenient transitions near a frequency-doubled infrared LASER.
- The clock's design revolves around the use of robust and compact LASERs, commonly used in telecommunications and industrial machining.
- It is not as accurate as an optical atomic clock in the laboratory, but it is still accurate enough to lose or gain a second only every 9.1 million years.
- A recent breakthrough has led to the creation of a portable optical atomic clock that trades some degree of accuracy for increased portability and robustness, making it the most accurate timekeeping device currently available for maritime use.

How are Optical Atomic Clocks Different?

- Optical Atomic Clocks: These are more accurate than their counterparts due to their working principle. The resonance frequency in these clocks is in the optical range, which includes visible light, ultraviolet, and infrared radiation.
- Role of LASERs in Optical Atomic Clocks: Researchers use LASERs to stimulate atomic transitions in an optical atomic clock. The light emitted by these lasers is highly coherent, meaning all light waves have the same frequency and their wavelengths are related in a stable manner, resulting in precise properties and great stability.
- Higher Accuracy through Coherent Light: Optical atomic clocks achieve higher accuracy in two main ways through the use of coherent light.
- Higher Operating Frequency: If we compare two clocks, A and B, where A has a higher operating frequency than B, A will complete more oscillations than B in the same time.
- It allows A to measure smaller increments of time more accurately as it has more cycles to count within that time frame.
- Narrower Linewidths: Optical atomic clocks have much narrower linewidths, which is the range of frequencies over which the transition occurs.
- The narrower the linewidth, the easier it is to tune the frequency of the optical light that produces the resonance, leading to higher accuracy as it enables more precise changes.
- Use of Strontium in Optical Atomic Clocks: The most commonly used atom in optical atomic clocks is strontium (Sr). It is preferred due to its narrow linewidths and stable optical transitions.

Significances of Optical Atomic Clocks

- Higher Frequency: Optical clocks use light in the visible spectrum to measure atomic oscillations. The resonance frequency of the light rays is about 50,000 times higher than that of microwave radiation, allowing for a more precise measurement.
- Greater Stability and Accuracy: The stability of an atomic clock is proportional to its operating frequency and inversely proportional to the width of the electronic transition. Since light has a frequency roughly 100,000 times higher than that of microwaves – clocks.
- The expected deviation of the new optical clock is 1 second in 15 billion years.
- Potential Applications: Optical clocks have many potential applications – from improved GPS measurements and better tracking of deep-space probes to fundamental tests of general relativity and measurements of the physical constants.
- Maritime Navigation: Ships at sea have always faced challenges in maintaining accurate timekeeping due to the lack of stable reference points. The advent of this portable atomic clock aims to enable precise maritime navigation, thereby enhancing safety and efficiency at sea.

Xylitol

Syllabus: GS3/ S&T

In News

- Recent study mentioned that the popular artificial sweetener Xylitol is linked to higher cardiovascular issues including heart attack and stroke.
- In 2023, the study found similar results for another low-calorie sweetener called erythritol.

About Xylitol

- Xylitol is a natural sugar alcohol found in plants, including many fruits and vegetables. It has a sweet taste and is often used as a sugar substitute.
- Xylitol is a white crystalline solid that is soluble in water. The artificial sweetener commonly used in toothpaste and sugar-free chewing gum.
- It can be found naturally or artificially produced.

Microalgae

Syllabus :GS 3/Environment /S&T

In News

- CSIR-Indian Institute of Chemical Technology (IICT) scientists identified microalgae as a potential protein supplement.

About Microalgae

- Microalgae are a group of autotrophic microorganisms that live in marine, freshwater and soil ecosystems and produce organic substances in the process of photosynthesis.
- They are a diverse group of microscopic aquatic organisms.
- They differ from plants in basic ways.
- For instance, they grow in water instead of on land and absorb nutrients directly instead of via roots.
- While some microalgae are seen as harmful, others provide useful products.

Outcomes of Recent study

- Scientists have spotlighted the potential of Chlorella Growth Factor (CGF) as an ideal ingredient for a wide range of food and feed applications.
- CGF presents a promising alternative protein source that can significantly contribute to human and animal diets.
- Its beneficial properties extend beyond basic nutrition, promoting overall health, immunity, and well-being.
- Already, inclusion of CGF in poultry diets has been shown to enhance egg quality, indicating its potential as a superior protein supplement in animal nutrition.

Do you know ?

CGF is a protein-rich extract derived from the microalgae 'Chlorella sorokiniana'.It is said to be found exclusively in the cell nucleus of 'chlorella', is produced during photosynthesis and is laden with a variety of beneficial components, including peptides, amino acids, nucleotides, polysaccharides, glycoproteins, vitamins, and minerals. It is particularly rich in essential amino acids, which are vital for human and vertebrate health but cannot be synthesised by their bodies.

Chapter-
6

INTERNATIONAL RELATION

India-Japan Joint Working Group on Counter Terrorism

Syllabus: GS2/International Relations

Context

- The 6th Meeting of the India-Japan Joint Working Group on Counter-Terrorism was held in New Delhi.

About

- Both sides exchanged views on the terrorist threats in their respective regions, including State-sponsored cross-border terrorism in the Asian region.
- The two sides assessed counter terrorism challenges, including the use of new and emerging technologies by terrorists, misuse of the internet for terrorist purposes, radicalisation and terror financing.
- Countering terror financing, organized crime and narco-terror networks were also discussed in the meeting.
- Both sides emphasized the importance of strengthening counter-terrorism cooperation through exchanging information, capacity building, training programs & exercises, and cooperation at the multilateral fora, such as the United Nations, Financial Action Task Force, and QUAD.

What is Terrorism?

- Terrorism encompasses a range of complex threats: organized terrorism in conflict zones, foreign terrorist fighters, radicalized 'lone wolves', and attacks using chemical, biological, radiological, nuclear and explosive materials.
- It typically involves the deliberate targeting of civilians and it aims to create a sense of terror.
- It's a complex and multifaceted phenomenon, often rooted in socio-political grievances, extremism, or radical ideologies.

Challenges in Tackling Terrorism

- Use of Evolving Techniques: Terrorist groups continuously evolve their tactics, techniques, and procedures to evade detection and carry out attacks.
- There has been notable increase in use of drones for cross-border trafficking of arms and drugs as well as launching terror attacks.
- Transnational Nature: Terrorism often transcends national borders, making it difficult for individual nations to address the threat effectively.
- Root Causes: Addressing the root causes of terrorism, such as poverty, inequality, political grievances, and extremist ideologies, requires long-term strategies that go beyond traditional security measures.
- Civil Liberties and Human Rights Concerns: Balancing security measures with the protection of civil liberties and human rights presents a significant challenge.
- Measures such as surveillance, detention without trial, and restrictions on freedom of speech raise ethical concerns.
- Cyberterrorism: The internet provides a platform for terrorist propaganda, recruitment, and coordination.
- Addressing online radicalization and countering terrorist narratives in cyberspace requires collaboration between governments, tech companies, and civil society organizations.
- Financing and Resources: Tracking and disrupting terrorist financing networks can be challenging due to the use of informal channels, money laundering techniques, and legitimate financial institutions.
- Lone Actors: The rise of homegrown terrorists and lone actors presents a challenge for counterterrorism efforts.
- These individuals may not have direct connections to established terrorist groups, making them harder to detect and prevent.

Global Measures Taken to Combat Terrorism

- United Nations Counterterrorism Framework: The UN Security Council has adopted several resolutions that provide a legal framework for counterterrorism actions, including measures to prevent terrorist financing, stem the flow of foreign fighters, and strengthen border security.
- Financial Action Task Force (FATF): FATF is an intergovernmental organization that sets standards and promotes policies to combat money laundering and terrorist financing.
- Member countries implement FATF recommendations to strengthen their anti-money laundering and counterterrorism financing regimes.
- Global Counterterrorism Forum (GCTF): GCTF is a multilateral forum that facilitates cooperation and capacity-building initiatives to strengthen counterterrorism efforts worldwide.
- Intelligence Sharing and Cooperation: Bilateral and multilateral intelligence-sharing agreements enable countries to exchange information on terrorist threats, suspects, and activities.

India's policy on tackling Terrorism

- Amendment in UAPA :The Central Government amended the Unlawful Activities (Prevention) Act (UAPA) in August 2019 to include the provision of designating an individual as terrorist. Prior to this amendment, only organizations could be designated as terrorist organization.
- Policy of Zero-Tolerance Against Terrorism: India calls for zero-tolerance against terrorism and focuses on developing a common strategy to curb it.
- National Investigation Agency: It is India's counter-terrorist task force and is empowered to deal with terror-related crimes across states without special permission from the states.
- It was established after the 2008 Mumbai terror attack.
- Comprehensive Integrated Border Management System: It improves the capability of Border Security Force (BSF) in detecting and controlling the cross border crimes like illegal infiltration, smuggling of contraband goods, human trafficking and cross border terrorism, etc.
- India's action plan at UNSC: In 2021, at the 20th anniversary of the UN Security Council (UNSC) Resolution 1373, India presented an eight-point action plan to deal with the scourge of terrorism.

Conclusion

- Countering radicalization and addressing socio-economic and political grievances are essential components of comprehensive counterterrorism efforts.
- Collaboration on cybersecurity is essential for combating cyberterrorism and preventing terrorist use of the internet for recruitment and propaganda.

Netherlands: India's third- largest Export Destination

Syllabus :GS 2/IR

In News

- The Netherlands has emerged as India's third- largest export destination after the U.S. and UAE during 2023-24, even as the country's merchandise shipments dipped by more than 3%

Key Points

- The main commodities which registered healthy exports growth in the Netherlands include petroleum products ($14.29 billion), electrical goods, chemicals, and pharmaceuticals in the last fiscal.
- India's trade surplus with the Netherlands rose to $17.4 billion in FY24 from $13 billion in FY23.

Netherlands

- Netherlands, country located in northwestern Europe

The Netherlands is bounded by the North Sea to the north and west, Germany to the east, and Belgium to the south

- major rivers flow through the Netherlands: the Rhine, the Meuse , and the Scheldt.
- The IJsselmeer is a lake on the coast of the Netherlands

- The seat of the international court of justice is at the Peace Palace in The Hague (Netherlands).
- International Criminal Court (ICC) : Headquarters: The Hague, the Netherlands

Joint Task Force on Investment (JTFI) Between India and Qatar

Syllabus: GS2/IR

Context

- First Joint Task Force on Investment (JTFI) held between India and Qatar.

About

- The meeting outlays the robust economic relationship between India and Qatar rooted in a shared vision for inclusive development.
- India's bilateral trade with Qatar in 2022-23 was US$ 18.77 billion.
- India's export to Qatar during 2022-23 was US$ 1.96 billion and India's import from Qatar was US$ 16.8 billion.
- India is among the top three largest export destinations for Qatar (China and Japan being the other two) and is also among the top three sources of Qatar's imports, along with China and US.
- Qatar is the largest supplier of LNG to India accounting for over 48% of India's global LNG imports.
- Qatar is also India's largest supplier of LPG accounting for 29% of India's total LPG imports. Therefore, the balance of trade continues to be heavily in Qatar's favour.

Biopharmaceutical Alliance

Syllabus: GS2/International Organisation

Context

- Recently, the Biopharmaceutical Alliance was launched during the Bio International Convention 2024 held in San Diego, US.

About the Biopharmaceutical Alliance

- It was launched in response to the drug supply shortages experienced during the Covid-19 pandemic by India, South Korea, US, Japan, and European Union (EU).
- It aims to put joint efforts into building a resilient supply chain and to address the challenges of drug supply shortages in the bio-pharmaceutical sector.
- The participants emphasised the importance of a reliable and sustainable supply chain and agreed to coordinate the respective countries' bio policies, regulations, and research and development support measures.
- They acknowledged that the production of essential raw materials and ingredients is concentrated in a few countries and agreed to work together to build a detailed pharmaceutical supply chain map.

India's Role

- The National Biopharma Mission in India aims to enable and nurture an ecosystem for preparing India's technological and product development capabilities in biopharmaceutical to a level that will be globally competitive over the next decade.
- The mission is focused on transforming the health standards of the country through affordable product development.

Highs and Lows of India–US Convergence

Syllabus: GS2/International Relations

Context

- The assassination attempt on a Sikh separatist in the United States (US) has become a bone of contention between India and the US.

Overview of India and US Bilateral Relations

- Since India's independence, ties with the United States have weathered the Cold War era distrust and estrangement over India's nuclear program.

- Relations have warmed in recent years and cooperation has strengthened across a range of economic and political areas.
- Bilateral Trade: The bilateral trade between the two countries has risen by 72 percent between 2017-18 and 2022-23.
- The US accounted for 18 percent of the gross FDI inflows into India during 2021-22, ranking second behind Singapore.
- Defense and Security: India and the US have signed a troika of "foundational pacts" for deep military cooperation, beginning with the Logistics Exchange Memorandum of Agreement (LEMOA) in 2016, followed by the Communications Compatibility and Security Agreement (COMCASA) after the first 2+2 dialogue in 2018, and then the Basic Exchange and Cooperation Agreement (BECA) in 2020.
- In 2016, the United States elevated India to a major defense partner.
- Space: Artemis Accords signed by India established a common vision for the future of space exploration for the benefit of all humankind.
- Multilateral Cooperation: India and the United States cooperate closely in multilateral organizations and forums, including the United Nations, G20,, International Monetary Fund, World Bank, and World Trade Organization.
- Together with Australia and Japan, the United States and India convene as the Quad, a diplomatic network, to promote a free and open Indo-Pacific.
- Nuclear Cooperation: Civil Nuclear Deal was signed in 2005, under the agreement, India agreed to separate its civil and military nuclear facilities and place all its civil resources under International Atomic Energy Agency (IAEA) safeguards.
- In exchange, the United States agrees to work toward full civil nuclear cooperation with India.
- New initiatives: Several new initiatives have been announced like GE-HAL deal to manufacture jet engines in India and the initiative on Critical and Emerging Technology (iCET), to bring revolution between the relations of the two nations.

Divergence in relations

- Conflicting positions: India's muted criticism of the Russian invasion of Ukraine in 2022 expectedly led to some frustration in the West, raising questions over India's credibility as a security partner.
- Limited Utility: India's utility to the US in an Indo-Pacific conflict, such as a Chinese invasion or naval blockade of Taiwan, is likely limited.
- In the event of US military involvement in Taiwan's defense, India would likely avoid entanglement in such a US-China conflict.
- The US seeks greater alignment from its allies against Russia. While countries like South Korea and Australia have sent military aid to Ukraine, India is viewed by the US and the West as opportunistically buying more oil from Russia amid the war.
- Defence Relations with Russia: The US is concerned about India's acquisition of arms like the S-400 air defense system, as it strengthens Russian power, hinders interoperability and secure communications between US and Indian forces, and prevents sharing of sensitive weapons technologies.

Concerns for India

- Dependency on China: US aid in the Russia-Ukraine war strengthens Ukraine's defense and counter offensives, forcing Russia to rely more on China for support. This diminishes Russian autonomy and potentially its ability to honor defense agreements with India in an India-China conflict.
- The Russia-Ukraine conflict has shifted the focus of the US away from China, and has, therefore, contributed to considerably eroding the strategic convergence between India and the US.
- Further, the war in the Middle East has diverted US attention away and Indo-Pacific in general and India, in particular, have suffered neglect.

Concluding remark

- The India-US ties have come a long way in the last 25 years, and it holds significant importance in shaping the global order of the 21st century. However, looking at it today, the relationship seems hitting a ceiling as the strategic glue in the foundation is coming apart.

- The strategic convergence of India and the US is because of the common threat posed by China. The more the US focuses on Russia or any other adversary and India focuses on Pakistan, the more their strategic convergence weakens.

China-Pakistan Economic Corridor (CPEC)

Syllabus: GS2/ International Relations

Context

- The second phase of the China-Pakistan Economic Corridor (CPEC) is expected to be formally announced during the visit of Pakistan's Prime Minister to China.

China-Pakistan Economic Corridor (CPEC)

- Launched in 2015, the China-Pakistan Economic Corridor (CPEC) is a 3,000-kilometer-long network of infrastructure projects that links China's Xinjiang region to Pakistan's Gwadar Port in Balochistan.
- The $62-billion CPEC, is part of China's Belt and Road Initiative (BRI), aimed at expanding its geopolitical influence through investments in infrastructure projects in more than 100 countries.
- Belt and Road Initiative (BRI) seeks to establish a network of land and sea routes linking Southeast Asia, Central Asia, the Gulf countries, Africa, and Europe.
- The project violates the sovereignty of India as it passes through Pakistan -occupied Kashmir (PoK), which is a disputed territory between India and Pakistan.

India's Neighbourhood First Policy

Syllabus: GS2/International Relation

Context

- Recently, the Prime Minister of India reaffirmed India's commitment to its 'Neighbourhood First' Policy and 'Security and Growth for All in the Region 'SAGAR' Vision.

About the India's 'Neighbourhood First Policy'

- It guides its approach towards the management of relations with countries in its immediate neighbourhood, that is, Afghanistan, Bangladesh, Bhutan, Maldives, Myanmar, Nepal, Pakistan and Sri Lanka.
- The overarching philosophy of India's engagement with its neighbours is to ensure that they also benefit from our economic development and growth.
- Thus, the focus of our Neighbourhood First policy is to enhance connectivity, augment trade and investment, and build a secure and stable neighbourhood.

Objectives

- The Neighbourhood First policy, inter alia, is aimed at enhancing physical, digital and people-to-people connectivity across the region, as well as augmenting trade and commerce.
- It has evolved into an institutional priority for all the relevant arms of the Government managing relations and policies with our neighbourhood.

Extension of the Policy

- Act East Policy: With the objective to further strengthen ties with countries of the Southeast Asian region, India's 'Look East Policy' launched in 1992, was upgraded to the 'Act East Policy' in 2014, with proactive and pragmatic focus on the extended neighbourhood in the Indo-Pacific region.
- Think West Policy: India's outreach to the Gulf and West Asian countries has become an increasingly important pillar of its foreign policy. This region has traditionally been important for India's energy security.
- Connect Central Asia Policy: It envisages a deep, meaningful and sustained engagement with the Central Asian region.

Security and Growth for All in the Region (SAGAR)

– It was first articulated in 2015, envisaging a free, open, inclusive, peaceful, and prosperous Indo-Pacific region, one which is built on a rules-based international order, sustainable and transparent infrastructure investment, freedom of navigation and overflight, unimpeded lawful commerce, mutual respect for sovereignty, peaceful resolution of disputes, as well as equality of all nations.

– Guided by SAGAR, India is making concrete contributions in connectivity, capacity building, disaster management, enhancing people to people exchanges, promoting sustainable development, creating awareness on illegal, unreported, unregulated fishing, enhancing maritime safety and security as well as strengthening underwater domain awareness in the Indian Ocean Region.

European Union's 'chat control' Law

Syllabus :GS 2/International

In News

- The EU's proposed Chat Control law has become a bone of contention between members of the bloc.

About the law

- It was introduced in May 2022 by the European Commissioner for Home Affairs to combat child sexual abuse online
- Under the proposed legislation, technology companies would be required to implement automated tools to scan private messages for content indicative of child sexual abuse.
- This proactive monitoring system aims to identify and report suspicious activities promptly, enabling law enforcement agencies to intervene and safeguard potential victims.
- Under it, messaging apps are required to scan "images and the visual components of videos and URLs" while the detection of audio communication and text is excluded.
- Furthermore, it requires such apps to obtain the explicit consent of users before scanning their private communications as part of the terms and conditions of use.
- Interior Ministers of Spain and Ireland have supported the proposal.

Need and Purpose

- The proliferation of online platforms has revolutionized communication, offering unprecedented connectivity but also facilitating the dissemination of illegal content, including child sexual abuse material.
- EU officials cite a sharp rise in reports of such materials, necessitating more stringent measures to combat this grave issue effectively.
- Therefore , the EU's proposed Chat Control law aims to mandate technology platforms to actively monitor private messages for suspected illicit content.

Challenges and Criticism

- Scanning of Private Messages: The proposal includes a clause allowing for mass scanning of private messages, even those protected by end-to-end encryption.
- Critics argue that the law poses significant risks to privacy rights, as it mandates the scanning of private communications without explicit consent from users.
- France, Germany, and Poland have particularly opposed this provision.
- End-to-End Encryption Dilemma: Scanning end-to-end encrypted messages poses a challenge.
- Opening backdoors for scanning can compromise the promise of secure communication.
- Tech companies and privacy experts have vehemently opposed this regulation.
- The iPhone maker recognised in the process how authoritarian governments could potentially misuse the feature by using it as a tool to target individuals who oppose the regime.

Conclusion and Way Ahead

- The EU's Chat Control law represents a pivotal moment in the global discourse on digital regulation and governance.
- It aims to protect children but must navigate the delicate terrain of privacy rights.
- Striking the right balance will be crucial as technology evolves and privacy concerns persist.

- Continued scrutiny, transparency, and informed dialogue will be essential in navigating the complexities of the Chat Control law and its broader implications for the digital age.

State Visit of the Prime Minister of Bangladesh to India

Syllabus: GS2/IR

Context

- The Bangladesh Prime Minister Sheikh Haseena is on a state visit to India.

About

- The two sides signed key pacts including, increasing rail connectivity, boosting trade and having a 'green partnership'.
- India and Bangladesh pledged to start negotiations on a comprehensive economic partnership agreement (CEPA); decided to launch a medical e-visa facility for Bangladesh citizens; agreed to send a technical team to discuss Teesta river water-sharing.

Highlights of India Bangladesh Relations

- Independence and Liberation War: India played a crucial role in Bangladesh's independence in 1971, supporting the Bengali nationalist movement against Pakistani rule.
- This historic event laid the foundation for strong bilateral ties.
- Land Boundary Agreement (LBA): In 2015, both countries resolved long-standing border issues by exchanging enclaves and simplifying their international border, which had remained unresolved since partition in 1947.
- Connectivity: Five pre-1965 rail links have been rehabilitated between India and Bangladesh.
- There are currently three railway trains operating between the two countries – Maitri Express ; Bandhan Express ; and Mitali Express.
- The inauguration of Akhaura-Agartala cross-border rail link is a crucial step towards enhancing connectivity of northeastern India with Bangladesh.
- Economic Relations: Bangladesh is India's biggest trade partner in South Asia and India is the second biggest trade partner of Bangladesh in Asia.
- India is Bangladesh's largest export destination in Asia, with approx USD 2 billion of Bangladeshi exports to India in FY 2022-23.
- In FY 2022-23, the total bilateral trade has been reported as USD 15.9 billion.
- Trade Agreements: The two countries are members of various regional trade agreements such as the Asia Pacific Trade Agreement (APTA), the SAARC Preferential Trade Agreement (SAPTA) and the Agreement on South Asian Free Trade Area (SAFTA) which govern the tariff regimes for trade.
- Regional Cooperation: Both countries are active members of regional organizations like SAARC (South Asian Association for Regional Cooperation) and BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation), promoting regional integration and cooperation.
- Various Joint exercises take place between the two countries:
- Exercise Sampriti (Army) and
- Exercise Milan (Navy).
- In the energy sector, Bangladesh imports nearly 2,000 megawatts of electricity from India.

Challenges

- Border Issues: Although the Land Boundary Agreement in 2015 resolved many longstanding border disputes, there are still occasional issues related to border security and illegal crossings that strain relations.
- Water Sharing: Disputes over the sharing of common rivers, such as the Teesta River, remain unresolved.
- Rohingya issue: The Bangladesh government aims for the peaceful repatriation of Rohingyas to Myanmar, but it's talks with the military junta have been unsuccessful so far.
- Bangladesh seeks India's cooperation to influence Myanmar, but the government, asserts that it will deport Rohingyas from its mainland.
- Trade Imbalance: While trade between India and Bangladesh has grown significantly, there remains a trade imbalance where India exports more to Bangladesh than it imports.

- This led to economic tensions and protectionist measures.
- Security Concerns: Issues related to border security, cross-border smuggling, and occasional incidents involving extremist groups pose security challenges for both countries, requiring continued cooperation and vigilance.
- China Factor: India's concern is the deepening relationship between Bangladesh and China, marked by the substantial Chinese investments in infrastructure in recent years.

Way Ahead

- India considers Bangladesh a critical ally in the region.
- a 4,096-km border, the India-Bangladesh border is the longest land boundary India has with any of its neighbours.
- Over the years, India and Bangladesh have forged a multifaceted relationship, marked by a shared history, culture, and geographical proximity.
- The foreign policy alignment between the two nations promises increased collaboration in traditional and new areas, and provides an opportunity for the two countries to address unresolved conflicts.
- Both the countries are poised to take forward discussions on a FTA to enhance their economic partnership and boost investments

Indus Water Treaty

Syllabus: GS2/International Relations

Context

- A delegation from Pakistan was flown to Jammu and Kashmir's Kishtwar district to inspect power projects set up on the rivers covered under the Indus Water Treaty (IWT) of 1960.

About

- The delegates will visit 850 megawatts (MW) Ratle hydroelectric power project site at Drabshalla and the 1,000 MW Pakal Dul project on river Marusudar.
- Both these projects are over a tributary of the Chenab river.
- Pakistan has formally raised objections to other projects in the Jammu & Kashmir and Ladakh, which include 10 hydroelectric power projects of Durbuk Shyok, Nimu Chilling, Kiru, Tamasha, Kalaroos-II, Baltikulan Small, Kargil Hunderman, Phagla, Kulan Ramwari and Mandi.

What is the Indus Water Treaty?

- In 1960, India and Pakistan signed the Indus Waters Treaty with the World Bank as a signatory of the pact.
- Under the treaty, India got control over the three eastern rivers Beas, Ravi, and Sutlej while Pakistan got control of the western rivers Indus, Jhelum, and the Chenab.
- According to the treaty, India has the right to generate hydroelectricity through the run-of-the-river (RoR) projects on the western rivers which are subject to specific criteria for design and operation.

India-Russia Mutual Logistics Agreement

Syllabus: GS2/International Relations

Context

- Recently, India and Russia concluded the Reciprocal Exchange of Logistics Agreement (RELOS) aiming to bolster military cooperation.

About the Reciprocal Exchange of Logistics Agreement (RELOS)

- It is a bilateral administrative agreement to provide logistical support that facilitates access to each other's military facilities, in exchange of fuel and other provisions.
- Among the three services, the Indian Navy has been the biggest beneficiary of these administrative arrangements signed with several countries, improving its operational turnaround and increasing interoperability on the high seas.
- The agreements have been a win-win for both the parties involved.

- By signing the RELOS, India and Russia are scaling up their military-to-military cooperation for real-time combat situations.

Significance of Agreement

- A logistics pact facilitates mutual logistical support during various military operations, training, port calls, including peacekeeping missions, Humanitarian Assistance and Disaster Relief (HADR), and joint military exercises.
- It involves critical services like refuelling, maintenance, and supply provisions, enhancing interoperability.
- It enhances access to Russian military facilities, especially in the Arctic region.

India's Strategic Reach (Logistics Agreements with Different Countries)

– India has similar logistics agreements with the United States, France, South Korea, Singapore, Australia, Vietnam, and Japan.
– These pacts enhance India's strategic reach and operational readiness, ensuring that its military can sustain longer and more complex deployments.

Quad Countries

– India-United States Logistics Exchange Memorandum of Agreement (LEMOA) (2016): It provides access to each other's facilities for supplies and repairs, bolstering defence cooperation between India and the US.
– India–Japan Acquisition and Cross-Servicing Agreement (ACSA) and India–Australia Mutual Logistics Support Agreement (MLSA), demonstrating all the Quad Countries.

Others

– India-Vietnam Mutual Logistics Agreement (2022): It aims to strengthen military logistics support and expand defence ties between India and Vietnam.
– Apart from this, India maintains such military logistics agreements with France, Singapore and South Korea.

India's Effort

National Logistics Policy (NLP) (2022)

– Aim: Lower logistics costs (currently around 13-14% of GDP) to global benchmarks (around 8%) by 2030.
– Impact: Boosts economic growth, competitiveness, and efficiency across sectors by streamlining logistics.

India's Trade Agreements

– India has signed 13 Free Trade Agreements (FTAs) and 6 Preferential Trade Agreements (PTAs) with various trading partners, including Mauritius, UAE, and Australia.

International Hydrographic Organisation (IHO)

Syllabus: GS2/International Organisation

Context

- Recently, the International Hydrographic Organisation (IHO) celebrated 'World Hydrography Day' to raise awareness about hydrography.

About the International Hydrographic Organization (IHO)

- It (founded in 1921) is an intergovernmental organisation that plays a crucial role in ensuring the safety of navigation and the protection of the marine environment.
- Its primary aim is to ensure that all the world's seas, oceans, and navigable waters are accurately surveyed and charted.

Functions and Activities

- Survey Best Practices: The IHO issues guidelines and best practices for hydrographic surveys, ensuring high-quality data collection.
- It coordinates the activities of national hydrographic offices worldwide, and deliver standards for hydrographic data and product specifications;
- Nautical Charts: It sets standards for nautical charts, essential for safe navigation.
- Hydrographic Information: The IHO maximises the use of hydrographic information, benefiting mariners, researchers, and environmentalists.

- It develops guidelines for data assurance, including cybersecurity and data quality assessment.
- It promotes ocean sustainability by reaching out to non-navigation users of hydrographic data.
- Capacity Building: The organisation supports capacity building in member states, fostering expertise in hydrography.
- It motivates collaboration among international organisations, academia, and industry for standardised maritime data products.

India and IHO

- The Indian Naval Hydrographic Office (INHD) plays a crucial role in hydrography and navigational safety, and functions under the Indian Navy as the nodal agency for Hydrographic surveys and nautical charting in India.
- India has been an active member of the IHO since 1955.

Role of INHD

- INHD is a world-class Hydrographic Office with seven ocean-going survey ships and well-trained personnel.
- It provides hydrographic products and services in the Indian Ocean Region (IOR).
- INHD actively supports coastal states in the IOR through hydrographic surveys, capacity building, and nautical charting.
- India fully supports the IHO's work program, focusing on global chart standards, strategic planning, emerging technologies, and safety services.

Hydrography

– It deals with the measurement and description of the physical features of oceans, seas, coastal areas, lakes and rivers, as well as with the prediction of their change over time, for the primary purpose of safety of navigation and in support of all other marine activities, including economic development, security and defence, scientific research, and environmental protection.
– It involves the scientific study and mapping of marine environments, including coastlines, depths, tides, currents, and underwater features, and underpins almost every other activity associated with the sea.

World Hydrography Day

– It is celebrated on 21 June each year to raise awareness about hydrography and its crucial role in improving our knowledge of the seas and oceans.
– It was established by the IHO in 2006.
– Theme for 2024: 'Hydrographic Information – Enhancing Safety, Efficiency, and Sustainability in Marine Activities'.
a. It reflects the ongoing transformation in navigation, including e-navigation, autonomous shipping, and emission reduction.

Need for Reforms in UNSC

Syllabus: GS2/IR

Context

- India has asserted that as the United Nations turns 80 next year, it is "high time" to reform the Security Council.

About the UNSC

- The United Nations Security Council (UNSC) is one of the principal organs of the United Nations, responsible for maintaining international peace and security.
- It was established in 1945 as part of the UN Charter and is composed of 15 member states, including five permanent members with veto power—China, France, Russia, the United Kingdom, and the United States—and ten non-permanent members elected for two-year terms by the General Assembly.
- It is headquartered in New York City.

Need for the Reforms in the UNSC

- Current Composition: The current composition of the Security Council has under-representation and un-representation of key regions.
- Inability to Adress Conflicts: The current composition of the council has an inability to address critical conflicts and maintain international peace and security.
- Changes in World Order: The world has undergone a sea change since 1945 and the new realities need to be reflected in the permanent membership.
- Veto Power: Currently, only the five permanent members hold veto powers and through its use have stalled action in the Council to address global challenges and conflicts such as in Ukraine and Gaza.
- The remaining 10 nations in the Council are elected to sit as non-permanent members for two-year terms and do not have veto powers.
- Legitimacy: The disproportionate power held by the five permanent members, particularly their veto power lead to a perception of unfairness and lack of legitimacy.

Why India Should Get Permanent Membership of UNSC?

- Global Population and Representation: India is the world's second-most populous country, representing approximately 18% of the world's population.
- Such demographic significance warrants proportional representation in global decision-making bodies like the UNSC.
- Economic Powerhouse: India has emerged as a major global economic force, ranking among the top economies by GDP (nominal) and GDP (PPP).
- Its economic strength contributes significantly to global stability and development, which aligns with the UNSC's mandate to maintain international peace and security.
- Commitment to Peacekeeping: India has been one of the largest contributors to UN peacekeeping missions, demonstrating its commitment to global peace and security.
- Strategic Importance: India occupies a pivotal geopolitical position in South Asia and the broader Indo-Pacific region.
- Its influence extends beyond regional boundaries, making it crucial in addressing global security challenges such as terrorism, climate change, and maritime security.
- Democratic Values: As the world's largest democracy, India upholds principles of pluralism, tolerance, and inclusivity, which are fundamental to the UN's ethos.
- Support from Member States: India enjoys broad support from a significant number of UN member states, including influential nations from various regions.
- This backing reflects recognition of India's global role and its potential contributions to enhancing the UNSC's capacity to respond to global crises.

Limitations in Introducing the Reforms in UNSC

- Veto Power of Permanent Members: Any reforms to the composition or working methods of the UNSC require the approval of the five permanent members.
- These countries have divergent interests and are reluctant to support changes that could diminish their influence within the Council.
- Regional Dynamics: Regional rivalries and geopolitical tensions complicate efforts to reform the Council.
- Complexity of the Reform Process: Amending the UN Charter to enact reforms requires a lengthy and complex process involving ratification by a significant number of member states, making it difficult to enact substantive reforms.
- Chinese Opposition: China being a permanent member blocks the growth of India becoming a Permanent Member.

Way Ahead

- It is important that both the permanent and non-permanent membership be representative of the world as it is today, not the world as it existed in the wake of the Second World War.
- Reforms in the UNSC are essential for maintaining its relevance, legitimacy, and effectiveness in addressing the complex security challenges facing the international community in the 21st century.

- However, achieving consensus on such reforms among the UN's member states remains a challenging and ongoing process.

Paraguay Becomes Member of International Solar Alliance

Syllabus: GS2/International Relations

Context

- Paraguay has become the 100th member of the International Solar Alliance.

About

- India and France jointly launched the International Solar Alliance (ISA) during 21st Conference of Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Paris in 2015.
- The ISA aims to contribute to the implementation of the Paris Climate Agreement through the rapid and massive deployment of solar energy.
- Members: At present, 119 countries are signatories to the ISA Framework Agreement, of which 100 countries have submitted the necessary instruments of ratification to become full members of the ISA.
- Spain has joined as the 99th member of the International Solar Alliance.

Resolution on Emergency

Syllabus: GS2/Polity

Context

- Lok Sabha Speaker Om Birla read out a resolution condemning the imposition of Emergency in 1975.

Emergency Provisions

- Part XVIII of the Constitution speaks of emergency provisions.
- The emergency provisions can be classified into three categories:
- Articles 352, 353, 354, 358 and 359 which relate to National emergency on the grounds of a threat to the security of India, either due to war, external aggression, or armed rebellion.
- Articles 355, 356 and 357 deal with imposition of President's rule in States on the grounds of failure of the constitutional machinery in a state, leading to the breakdown of law and order,
- Article 360 which speaks of financial emergency.
- India has witnessed three instances where a national emergency was declared under Article 352 of the Constitution.
- First National Emergency (1962): This was declared during the Indo-China war.
- Second National Emergency (1971): Declared during the Indo-Pakistan war that led to the liberation of Bangladesh.
- Third National Emergency (1975-1977): It was declared by then Prime Minister Indira Gandhi and lasted for 21 months. It was primarily declared on grounds of internal disturbance.
- Apart from national emergencies, there have been numerous instances where President's rule has been imposed in various states.
- Financial emergency under Article 360 has never been declared in India.

Panchsheel: 'Five Principles' of Peaceful Coexistence

Syllabus: GS2/International Relations

Context

- Recently, it is observed that China is celebrating the 70th anniversary of the 'Five Principles of Peaceful Coexistence', which India called it as Panchsheel.

About India-China Relations

- India and China share a complex history of diplomatic relations, marked by territorial disputes, border tensions, and occasional military clashes.

- Both countries established diplomatic relations in 1950, making India the first non-socialist bloc country to do so with the People's Republic of China.

Five Principles of Peaceful Co-existence (aka Panchsheel)

- These were first formally enunciated in the Agreement on Trade and Intercourse between the Tibet region of China and India signed in 1954.
- India welcomed Panchsheel, recognizing its alignment with its foreign policy since independence.

Ancient Roots

- It traces its origin to the Buddhist concept of Pañcaśīla, which describes the five moral vows of Buddhism: abstinence from murder, theft, sexual misconduct, lying, and intoxicants.
- Confucius, the Chinese philosopher, spoke of harmony amid differences, laying the groundwork for these principles.
- Panchsheel's modern form emerged in China, bridging ancient wisdom with contemporary international relations.

Key Features

- Mutual Respect for Territorial Integrity and Sovereignty: Both nations committed to respecting each other's territorial boundaries and sovereignty. It emphasised the importance of recognizing each other's rights and boundaries.
- Mutual Non-Aggression: India and China pledged not to engage in aggressive actions against each other. It aimed to prevent armed conflicts and maintain peace.
- Mutual Non-Interference: The two countries agreed not to interfere in each other's internal affairs. It emphasised respect for national autonomy and sovereignty.
- Equality and Mutual Benefit: India and China sought equal treatment and mutual benefits in their interactions. It emphasises fairness and cooperation.
- Peaceful Co-existence: The ultimate goal was peaceful coexistence, fostering an environment where both nations could thrive without conflict.

Relevance

- Post-Chinese Revolution, the Common Programme adopted most core Panchsheel principles.
- Panchsheel guided India-China relations and resonated in the North-South dialogue and other global groupings.
- Its relevance persists in our ever-changing world.
- Collective Security in Asia: India and China came to the conclusion that it was not through military pacts and alliances but through the Five Principles (Panchsheel) that a system of collective security or collective peace could be established in Asia. They visualised Panchsheel agreements of this type between China and Burma, Burma and India, China and Indonesia, then Indonesia and India etc.

Global Acceptance

- The Five Principles came to be accepted almost universally by countries and finally by the United Nations Organisation.
- The United Nations (UN) accepted the Five Principles as a code of conduct in international relations. Later, Yugoslavia, Sweden and India, moved a resolution in the UN containing the Five Principles; it was adopted unanimously.
- In a series of active and independent international moves, heads of both countries visited countries in Asia, Africa and Europe and signed with most of them agreements embodying the Five Principles.
- The Asian-African conference held in Bandung accepted the Five Principles, expatiating them into the Ten Principles of Bandung.
- Panchsheel became the presiding principle of the Asian-African movement for equality and freedom against the prevailing colonial and imperialist domination of the world.
- The Conference of Non-aligned nations in Belgrade accepted them as the core principles behind the Non Aligned Movement (NAM).

Concerns Related to India and China Relations

- Boundary Questions: Since the 1980s, India and China have sought peaceful resolution of their boundary dispute. Informal summits between leaders, like those in Wuhan (2018) and Chennai (2019), emphasised strategic communication and cooperation.
- The unresolved boundary issue remains a point of contention, leading to occasional tensions.
- Economic Ties: Bilateral trade has grown significantly, with China becoming India's largest trading partner in goods. However, economic competition and geopolitical tensions persist.
- Both countries vie for influence in South Asia, often competing for regional projects and markets.
- Strategic Geopolitics: South Asia lies at the crossroads of China's Belt and Road Initiative (BRI). The region's proximity to the Indian Ocean and shipping routes is critical for China's oil imports and trade.
- South Asia, where land and maritime Silk Roads intersect, plays a crucial role in this initiative.
- Infrastructure Investment: China invests heavily in port development, enhancing connectivity and securing its maritime trade routes.
- Military Dimension: China's military ties with South Asian nations have grown, impacting regional dynamics. Its influence extends through diplomacy, culture, and economic initiatives.

Conclusion and Way Forward

- India-China relations stand at a critical juncture. Both countries need to focus on Dialogue and Diplomacy, and Conflict Avoidance. Balancing competition and cooperation is essential for regional stability and prosperity, as highlighted at the Wuhan summit.
- As both nations celebrate 70 years of diplomatic ties, revisiting the spirit of good neighbourliness and friendship remains crucial.
- Today, the Panchsheel Principles continue to resonate globally. They guide interstate relations, remain relevant in addressing contemporary challenges, and foster peace, sovereignty, and mutual growth.

Revised Currency Swap Arrangement for SAARC countries

Syllabus: GS2/International Organisations

Context

- The Reserve Bank of India, has decided to put in place a revised framework on currency swap arrangement for SAARC (South Asian Association for Regional Cooperation) countries for the period 2024 to 2027.

About

- The SAARC Currency Swap Facility came into operation in 2012 with an objective to provide a backstop line of funding for short term foreign exchange liquidity requirements or balance of payment crises of the SAARC countries.
- Under the Framework for 2024-27, a separate INR Swap Window has been introduced for swap support in Indian Rupee.
- The total corpus of the Rupee support is 250 billion.
- The RBI will continue to offer swap arrangements in US$ and Euro under a separate US Dollar/ Euro Swap Window with an overall corpus of US$ 2 billion.

South Asian Association for Regional Cooperation (SAARC)

- SAARC was established in 1985.
- Secretariat: It was set up in Kathmandu, Nepal, in 1987.
- It aims to accelerate the process of economic and social development in its member states through increased intra-regional cooperation.
- SAARC has eight member countries: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri-Lanka.

India-U.S. Strengthen High Technology Cooperation

Syllabus :GS 2/IR

In News

- India & US Hold Deliberations On Initiative Of Critical And Emerging Technology.

Key areas of focus

- Bridging Innovation Ecosystems: The two nations are unlocking US$90 million in government funding over the next five years for the India-US Global Challenges Institute.
- It will foster high-impact university and research partnerships in areas such as semiconductor technology, sustainable agriculture, clean energy, health equity, and pandemic preparedness.
- Advancing Space Technology Cooperation :A landmark achievement is the collaboration between NASA and ISRO astronauts for a mission to the International Space Station.
- The Strategic Framework for Human Spaceflight Cooperation aims to enhance interoperability in space, with advanced training for ISRO astronauts at NASA's Johnson Space Center.
- The NASA-ISRO Synthetic Aperture Radar satellite, which will map the Earth's surface, is another notable project.
- Additionally, the US Space Force is partnering with Indian startups like 114ai and 3rdiTech to advance space situational awareness and other technologies.
- Deepening Defence Innovation: Discussions on India's acquisition of MQ-9B platforms, co-production of land warfare systems, and other defense initiatives are progressing.
- These high-altitude, long-endurance drones will significantly bolster India's surveillance and reconnaissance capabilities, enhancing its ability to monitor vast maritime and land borders effectively.
- The INDUS-X Summit highlighted several initiatives, including the launch of the INDUS-X Investor Summit in Silicon Valley and the awarding of $1.2 million in seed funding to U.S. and Indian companies
- Expanding Telecommunications Opportunities : The finalization of the India-US Open RAN Acceleration Roadmap and ongoing 5G and 6G R&D collaboration were significant milestones.
- Partnerships are being built to deploy high-quality, cost-effective Open RAN technology, with notable contributions from Qualcomm and Mavenir.
- Strengthening Biotechnology and Bio-manufacturing: The launch of the Track 1.5 Biopharmaceutical Supply Chain Consortium aims to enhance resilience in supply chains and foster high-impact R&D collaboration.
- Securing Semiconductor Supply Chains: A new strategic semiconductor partnership between General Atomics and 3rdiTech will focus on co-developing semiconductor design and manufacturing.
- The Semiconductor Readiness Assessment identified near-term industry opportunities and strategic development of semiconductor ecosystems.
- Promoting Clean Energy and Critical Minerals Partnership :India's role in the Mineral Security Partnership is vital, with co-investments in lithium and rare earths projects.
- An Advanced Materials R&D Forum will expand collaboration between American and Indian researchers.
- Efforts to quickly conclude a bilateral Critical Minerals Memorandum of Understanding are underway, focusing on technologies for critical minerals.
- Enhancing Quantum, AI, and High-Performance Computing Collaboration :New cooperation in quantum science and technology includes launching a workshop on post-quantum cryptography and facilitating visits of Indian technical experts to US quantum institutions.
- The India-US Science and Technology Endowment Fund will announce winners of the "Quantum Technologies and AI for Transforming Lives" competition, fostering joint R&D.

Significance

- United States and India Continue to Chart an Ambitious Course for the Initiative on Critical and Emerging Technology
- The collaborative spirit between India and the US is evident in recent initiatives, marking a new era in their strategic partnership in critical and emerging technologies.
- This partnership is poised to drive innovation, enhance security, and promote economic growth for both nations and the broader Indo-Pacific region.

Do you know ?

– In July 2023, India released a list of 30 minerals critical for the country and has been looking to acquire mines abroad in addition to expanding exploration within the country.

– India has incorporated a joint venture company Khanij Bidesh India Ltd. (KABIL) with the objective of acquiring critical mineral assets abroad to ensure consistent supply of critical and strategic minerals to the Indian domestic market.

a. KABIL is presently exploring opportunities for acquisition of critical minerals assets like lithium and cobalt in Australia, Argentina and Chile.

– India has already joined the mineral security partnership led by the U.S.

Kafala system

Syllabus: GS2/International Relations

Context

- Recently the Kafala system came into light after 49 migrant workers were killed in a fatal fire in Kuwait.

What is the Kafala system?

- The kafala, or sponsorship, system defines the relationship between foreign workers and their local sponsor, or kafeel, which is usually their employer.
- It has been used in Gulf Cooperation Council (GCC) countries—Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates—as well as Jordan and Lebanon.
- Sponsors use private recruitment agencies in the countries of origin to find workers and facilitate their entry to the host country.

Concerns with the system

- In most situations, workers need their sponsor's permission to transfer jobs, end employment, and enter or exit the host country.
- Workers have little recourse in the face of exploitation, and many experts argue that the system facilitates modern slavery.

Defence Pact between Russia and North Korea

Syllabus:GS 2/IR

In News

- North Korea and Russia have signed an agreement to strengthen their military cooperation

About the agreement

- The comprehensive partnership agreement signed includes provisions for mutual assistance in the event of aggression against either party.
- Article 4 of the agreement states that if one of the countries gets invaded and is pushed into a state of war, the other must deploy "all means at its disposal without delay" to provide "military and other assistance".
- They also agreed to work together to expand cooperation in trade and investment.
- The deal could mark the strongest connection between Moscow and Pyongyang since the end of the Cold War.

Repercussions

- The U.S. and its allies expressed growing concerns over a possible arms arrangement in which Pyongyang provides Moscow with badly needed munitions for its war in Ukraine, in exchange for economic assistance and technology transfers that could enhance the threat posed by Kim's nuclear weapons and missile program.

> **Do you know?**
>
> – North Korea and the former Soviet Union signed a treaty in 1961, which necessitated Moscow's military intervention if the North came under attack.
>
> – The deal was discarded after the collapse of the USSR, replaced by one in 2000 that offered weaker security assurances.

Schengen Countries

Syllabus: GS2/IR

In News

- A 12 per cent hike in the Schengen visa fee comes into effect. The EU attributes the increase to both inflation and growing civil worker wages.

About

- Schengen visa allows the holder to travel freely in the Schengen Area comprising 29 European countries, for short stays of a maximum of 90 days in any 180-day period. The visas are not purpose-bound, but they do not grant the right to work.
- The Schengen Area is a zone of 29 European countries that have abolished passport and other types of border control at their mutual borders. The area is named after the Schengen Treaty, which was signed in 1985 and entered into force in 1995.
- The countries in the Schengen Area have a joint agreement on the free movement of people, goods, and services, and have abolished visa requirements for citizens of other Schengen countries.
- Schengen countries account for around 20 per cent of India's outbound traffic.

Cyclone Remal

Context:

- The Prime Minister chaired a meeting to review the preparedness for cyclone "Remal" over North Bay of Bengal.

About Cyclone Remal

Overview:

- Name Origin: 'Remal' given by Oman, meaning 'sand' in Arabic.
- Significance: First cyclone to hit the region in the 2024 pre-monsoon season.
- Origin: Bay of Bengal (BoB).

Factors Contributing to the Formation:

- Depression: Formation over the central Bay of Bengal characterized by low pressure, circulating winds, and atmospheric instability.
- Warm Water: The Bay of Bengal has water temperatures 2–3°C warmer than average, providing the necessary energy for cyclones to form and intensify.
- Madden Julian Oscillation: A band of clouds moving eastward, influencing cyclone formation due to rotational effects.

Potential Impact:

- Sundarbans Region: If the cyclone makes landfall on the Indian coast, it could coincide with high tide, leading to partial damage to the fragile ecosystem.
- Geographical Factors: Shallow bathymetry and funnel-shaped geography of the northern Bay of Bengal can amplify cyclone intensity, increasing storm surge and flooding risks.

What are Tropical Cyclones?

- Tropical Cyclones are violent storms that originate over oceans in tropical areas and move over to coastal areas bringing about large-scale destruction caused by violent winds, very heavy rainfall and storm surges.
- These are low pressure weather systems in which winds equal or exceed speeds of 62kmph.
- Winds circulate around in anti-clockwise direction in the Northern Hemisphere and in clockwise direction in the Southern Hemisphere.
- "Tropical" refers to the geographical origin of these systems, which form almost exclusively over tropical seas.
- "Cyclone" refers to their winds moving in a circle, whirling round their central clear eye, with their winds blowing counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.
- The opposite direction of circulation is due to the Coriolis effect.

Tropical Cyclones in India

- Tropical cyclones striking India generally originate in the eastern side of India.
- Bay of Bengal is more prone to cyclones than Arabian Sea because it gets high sea surface temperature, low vertical shear winds and has enough moisture in the middle layers of its atmosphere.
- The frequency of cyclones in this region is bi-modal, i.e Cyclones occur in the months of May–June and October–November.

Conditions for cyclone formation:

- A warm sea surface (temperature in excess of 26o –27o C) and associated warming extending up to a depth of 60m with abundant water vapour.

- High relative humidity in the atmosphere up to a height of about 5,000 metres.
- Atmospheric instability that encourages the formation of cumulus clouds.
- Low vertical wind between the lower and higher levels of the atmosphere that do not allow the heat generated and released by the clouds to get transported from the area.
- The presence of cyclonic vorticity (rate of rotation of air) that initiates and favours rotation of the air cyclonically.
- Location over the ocean, at least 4–5 o latitude away from the equator.

How are Tropical Cyclones Formed?

- Tropical cyclones typically form over large bodies of relatively warm water. Warm water >
- Evaporation > Rising up of air > Low Pressure area.
- They derive their energy through the evaporation of water from the ocean surface, which ultimately re-condenses into clouds and rain when moist air rises and cools to saturation.
- Water takes up heat from the atmosphere to change into vapour.
- When water vapour changes back to liquid form as raindrops, this heat is released to the atmosphere.
- The heat released to the atmosphere warms the air around.
- The air tends to rise and causes a drop in the pressure.
- More air rushes to the centre of the storm.
- This cycle is repeated.

Why tropical cyclones don't form in the eastern tropical oceans?

- The depth of warm water (26-27°C) should extend for 60-70 m from the surface of the ocean/sea, so that deep convection currents within the water do not churn and mix the cooler water below with the warmer water near the surface.
- The above condition occurs only in western tropical oceans because of warm ocean currents (easterly trade winds push ocean waters towards west) that flow from east towards west forming a thick layer of water with temperatures greater than 27°C. This supplies enough moisture to the storm.
- The cold currents lower the surface temperatures of the eastern parts of the tropical oceans making them unfit for the breeding of cyclonic storms.
- ONE EXCEPTION: During strong El Nino years, strong hurricanes occur in the eastern Pacific. This is due to the accumulation of warm waters in the eastern Pacific due to weak Walker Cell.

Names of Tropical Cyclones

Depending on its location and strength, a tropical cyclone is referred to by different names:

1. Cyclones in the Indian Ocean
2. Hurricanes in the Atlantic
3. Typhoons in the Western Pacific and the South China Sea
4. Willy-willies in Western Australia

Structure of the tropical cyclone

- Tropical cyclones are compact, circular storms, generally some 320 km (200 miles) in diameter, whose winds swirl around a central region of low atmospheric pressure.
- The winds are driven by this low-pressure core and by the rotation of Earth, which deflects the path of the wind through a phenomenon known as the Coriolis force.
- As a result, tropical cyclones rotate in a counter clockwise (or cyclonic) direction in the Northern

Hemisphere and in a clockwise (or anticyclonic) direction in the Southern Hemisphere.

1. The Eye: A characteristic feature of tropical cyclones is the eye, a central region of clear skies, warm temperatures, and low atmospheric pressure. Typically, atmospheric pressure at the surface of Earth is about 1,000 millibars.
2. The Eyewall: The most dangerous and destructive part of a tropical cyclone is the eyewall. Here winds are strongest, rainfall is heaviest, and deep convective clouds rise from close to Earth's surface to a height of 15,000 metres.

3. **Rainbands:** These bands, commonly called rainbands, spiral into the centre of the storm. In some cases the rainbands are stationary relative to the centre of the moving storm, and in other cases they seem to rotate around the centre.

Landfall, what happens when a Cyclone reaches land from the ocean?

- Tropical cyclones dissipate when they can no longer extract sufficient energy from warm ocean water.
- A storm that moves over land will abruptly lose its fuel source and quickly lose intensity.
- A tropical cyclone can contribute to its own demise by stirring up deeper, cooler ocean waters tropical cyclone can contribute to its own demise by stirring up deeper, cooler ocean waters.

Cyclone Management in India

India is highly vulnerable to natural disasters especially cyclones, earthquakes, floods, landslides, and drought. Natural disasters cause a loss of 2% of GDP every year in India. According to the Home ministry, 8% of the total area in India is prone to cyclones. India has a coastline of 7,516 km, of which 5,700 km are prone to cyclones of various degrees.

- Loss due to cyclones: Loss of lives, livelihood opportunities, damage to public and private property and severe damage to infrastructure are the resultant consequences, which can disrupt the process of development
- Indian Meteorological Department (IMD) is the nodal agency for early warning of cyclones and floods.
- The Natural Disaster Management Authority is mandated to deal with disaster management in India. It has prepared National Guidelines on Management of Cyclone.
- The National Cyclone Risk Mitigation Project (NCRMP) was launched by Home ministry to upgrade the forecasting, tracking and warning about cyclones in states.
- National Disaster Response Force (NDRF) has done a commendable performance in rescuing and managing relief work.
- National Disaster Response Reserve (NDRR)– a fund of 250 crores operated by NDRF for maintaining inventory for an emergency situation.
- In 2016, a blueprint of the National Disaster Management Plan was unveiled to tackle disaster. It provides a framework to deal with prevention, mitigation, response and recovery during a disaster.
- According to the plan, the Ministry of earth science will be responsible for disaster management of cyclone. By this plan, India joined the list of countries which follow the Sendai Framework for Disaster Risk Reduction 2015-2030.
- Due to increased awareness and tracking of Cyclone, the death toll has been reduced substantially. For example, Very severe cyclones Hudhud and Phailin claimed lives of around 138 and 45 people respectively, which might have been more. It was reduced due to the early warning and relocation of the population from the cyclone-hit areas. Very severe cyclone Ockhi claimed many lives of people in Tamil Nadu and Kerala. This was due to the unprecedented change in the direction of the cyclone.
- But the destruction of infrastructure due to cyclonic hits has not been reduced which leads to increase in poverty due to the economic weakening of the affected population.

Swachhata Pakhwada

Context:

- Recently, the Ministry of Development of North Eastern Region (MDoNER) has taken a significant step towards promoting cleanliness and environmental sustainability with the launch of Swachhata Pakhwada and it will run from 16th May to 31st May 2024.

About Swachhata Pakhwada:

Overview:

- Swachhata Pakhwada is an initiative launched in April 2016 under the Swachh Bharat Mission.

Objective:

- The primary objective of Swachhata Pakhwada is to bring a fortnight of concentrated focus on Swachhata (cleanliness) issues and practices by engaging central government ministries/departments.

Aim:

- The initiative aims to involve all ministries and departments in a common program to contribute to the Swachh Bharat Mission.

Planning:

- An annual calendar is circulated among the ministries in advance to assist them in planning activities for the Pakhwada.

Monitoring:

- Ministries observing Swachhata Pakhwada are closely monitored using the online monitoring system of Swachhata Samiksha. This system facilitates the uploading and sharing of action plans, images, and videos related to Swachhata activities.

Implementation:

- During the Pakhwada fortnight, participating ministries are designated as 'Swachhata Ministries' and are expected to implement qualitative cleanliness improvements within their jurisdictions.

Swachh Bharat Mission:

- On October 2, 2014, the Prime Minister of India inaugurated the Swachh Bharat Mission (SBM) with the primary goal of eradicating open defecation throughout the country by 2019.
- The Swachh Bharat Abhiyan initiative signifies a crucial and long-overdue endeavor to improve sanitation conditions in India.
- Globally, India's record in terms of open defecation was even worse than in some economically disadvantaged regions such as Sub-Saharan Africa, Haiti, and Ghana.
- This campaign aims to tackle this issue and elevate India's sanitation standards to meet international norms.

Two distinct phases of the Swachh Bharat Abhiyan:

- The first phase of the mission extended until October 2019, and the second phase extends from 2020-21 to 2024-25.
- The objectives of these phases were rooted in completing the foundational work laid out in Phase 1.

Swachh Bharat Mission (SBM) Grameen Phase I:

- In the initial phase, launched in 2014, the rural sanitation coverage in the country stood at 38.7%.
- Since the initiation of this effort, more than 100 million individual toilets have been constructed.
- Rural areas across all states declared themselves Open Defecation Free (ODF) by October 2, 2019.

Swachh Bharat Mission (SBM) Grameen Phase II:

- The emphasis of Phase-II is on ensuring the lasting success of the accomplishments achieved in Phase-I.
- This phase places significant importance on establishing effective infrastructure for the management of Solid/Liquid & Plastic Waste (SLWM) in rural India.
- Implemented from 2020-21 to 2024-25 in a mission mode, this phase is allocated a comprehensive budget of Rs. 1,40,881 crores.

Under the ODF Plus category, SLWM is monitored using four outcome indicators:

- Plastic waste management,
- Biodegradable solid waste management (including animal waste),
- Greywater (Household Wastewater) management
- Faecal sludge management.

Swachh Bharat Mission-Urban (SBM-U):

- The Swachh Bharat Mission-Urban (SBM-U), initiated in 2014, by the Ministry of Housing and Urban Affairs, it is a national mission aimed at promoting cleanliness, sanitation, and effective waste management in the urban areas of India.
- The program's primary goal is to cleanse and eliminate open defecation from cities and towns across the country, and its implementation is divided into distinct phases.

Swachh Bharat Mission (SBM) Urban Phase I:

- In the initial phase, SBM-U 1.0, the pivotal goal was achieving Open Defecation Free (ODF) status across urban India. This involved providing access to sanitary facilities and encouraging a shift in behavioral norms.

Swachh Bharat Mission (SBM) Urban Phase II:

- SBM-U 2.0 (2021-2026), building upon the accomplishments of the initial phase, aimed not only for ODF+ and ODF++ standards but also for garbage-free urban regions.
- Central to SBM-U 2.0 were sustainable sanitation practices, efficient waste management strategies, and the promotion of a circular economy model, focusing on harnessing waste as a resource and minimizing waste generation.

GSAP SKILLS Platform

Context:

- Recently, the GSAP SKILLS Platform was launched at the Fourth meeting of the Subsidiary Body on Implementation, Convention on Biological Diversity.

About GSAP SKILLS Platform

Overview

- GSAP SKILLS Platform: The Global Species Action Plan (GSAP) utilizes the Species Conservation Knowledge, Information, Learning, Leverage, and Sharing (SKILLS) platform to make GSAP content accessible online, allowing real-time updates of technical tools and resources.
- Aim: Facilitates global collaboration and partnership, connecting decision-makers, species conservation practitioners, and experts at all levels.

Features:

- Real-time Updates: Provides up-to-date technical tools and resources.
- Global Biodiversity Framework: Each target is accompanied by a summary, rationale, and detailed actions, facilitating implementation efforts.
- Management: Managed proactively by the International Union for Conservation of Nature (IUCN) to meet the needs of governments and stakeholders for species conservation actions.
- Support: Developed with principal support from the Ministry of Environment, Republic of Korea, and additional resources from the Tech4Nature Initiative by IUCN and Huawei in 2020.

What is the Global Species Action Plan?

- Implementation Support: Developed to support the implementation of the Kunming-Montreal Global Biodiversity Framework (GBF).
- Addressing Biodiversity Loss: Aims to tackle increasing biodiversity loss worldwide.

Strategic Interventions

- Conservation Actions: Outlines strategic interventions and actions to conserve and sustainably manage species.
- Equitable Benefits: Ensures actions provide equitable benefits to all stakeholders involved in biodiversity conservation.

PRAGATI-2024

Context:

- The Central Council for Research in Ayurvedic Sciences (CCRAS) has launched a groundbreaking initiative called "PRAGATI-2024" (Pharma Research in AyurGyan And Techno Innovation) to foster collaborative research and innovation in the field of Ayurveda.

PRAGATI-2024 and CCRAS

PRAGATI-2024 Initiative:

- PRAGATI-2024 is an initiative aimed at exploring research opportunities and fostering collaboration between the Central Council for Research in Ayurvedic Sciences (CCRAS) and the Ayurveda drug industry.

Role of CCRAS:

- The CCRAS is an autonomous body under the Ministry of AYUSH, which oversees Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homeopathy.
- It serves as the apex body in India for the formulation, coordination, development, and promotion of research based on scientific principles in the Ayurveda and Sowa-Rigpa systems of medicine.

About Traditional Medicine:

The traditional Indian system of medicine comprises of Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy (AYUSH), is a perennially neglected alternative medicine sector.

Ayurveda:

- The word Ayurveda means 'Science of Life' and employs treatment modalities, such as purification, palliation, prescription of various diets, exercises and the avoidance of disease causing factors and it evolved nearly 5000 years ago.
- The Ayurvedic medicine, though practiced for a wide range of health needs, is more commonly used for preventive and health and immunity boosting activities.

Yoga & Naturopathy:

- Practices of Yoga are reported to have originated in India and is now being adapted to correct
- lifestyle by cultivating a rational, positive and spiritual attitude towards all life situations.
- 21st June is designated as 'International Yoga Day'.
- Naturopathy or naturopathic medicine is a drugless' non- invasive system of medicine imparting treatments with natural elements based on the theories of vitality, toxemia and the self-healing capacity of the body, as well as the principles of healthy living.
- The common naturopathy modalities include counselling, diet and fasting therapy, mud therapy, hydrotherapy, massage therapy, acupressure, acupuncture, magnet therapy and yoga therapy.

Unani Medicine:

- It was originated in the Arab world, though over a period of time it imbibed some concepts from other contemporary systems of medicines in Egypt, Syria, Iraq, Persia, India, China and other Middle East Countries.
- Unani medicine treats a patient with diet, pharmacotherapy, exercise, massages and surgery.

Siddha:

- Originated in India and is amongst the oldest systems of medicine in the country.
- It takes into account the patient, his/her surroundings, age, sex, race, habitat, diet, appetite, physical condition etc. to arrive at the diagnosis.
- Siddha System uses minerals, metals and alloys and drugs and inorganic compounds to treat the patients.
- Unlike most T&CM, this system is largely therapeutic in nature.
- Siddha literature is in Tamil and it is practiced largely in Tamil speaking part of India.

Homeopathy:

- The word 'Homeopathy' is derived from the Greek words, 'Homois' meaning 'similar' and 'pathos' means 'suffering'.
- It originated in Germany and was introduced in India around 1810-1839.
- It uses highly individualized remedies selected to address specific symptoms or symptom profiles.
- It is practiced in many countries and in India, where it is the second most popular system of medicine.

Sowa-Rigpa:

- The word combination means the 'science of healing' and is considered one of the oldest living and well-documented medical traditions of the world.
- It originated from Tibet and is widely practiced in India, Nepal, Bhutan, Mongolia and Russia.

Capacity Building on Design and Entrepreneurship (CBDE) Program

Context:

- Secretary, Department of Higher Education, Ministry of Education, Shri K. Sanjay Murthy today virtually launched the 'Capacity Building on Design and Entrepreneurship (CBDE)' program.

About Capacity Building on Design and Entrepreneurship (CBDE) Program

- Purpose: Equip identified Higher Education Institutions (HEIs) and faculty members with skills in Design and Entrepreneurship development.
- Industry-Academia Collaboration: Led by collaboration between industry and academia.
- Selection Process: Rigorous selection process resulted in the identification of 30 HEIs for program implementation.
- Nodal Centre: IIITDM, Kancheepuram, serves as the Nodal Centre for the program.

Program Components:

- Instilling problem-solving and entrepreneurial skills among students.
- One-to-one mentoring of faculty members by industry experts.
- Generative dialogue among faculty, student teams, and HEI partners facilitated by expert mentors.

Expected Outcome:

- Development of innovative solutions to complex challenges and scaling up of ideas with industry mentor support.

Industry Experts' Remarks:

- Expressed optimism about the program's outcomes and highlighted the importance of global linkages and entrepreneurial mindset among students.

India to Host Antarctic Treaty Consultative Meeting

Context:

- India, represented by the Ministry of Earth Sciences (MoES) and the National Centre for Polar and Ocean Research (NCPOR), will host the 46th Antarctic Treaty Consultative Meeting (ATCM 46) and the 26th Meeting of the Committee for Environmental Protection (CEP 26) in Kochi, Kerala, from May 20th to May 30th, 2024.

Understanding the Antarctic Treaty Consultative Meeting (ATCM):

- Purpose: The ATCM is an annual gathering of the original 12 parties to the Antarctic Treaty, along with other parties interested in Antarctic research.
- Antarctic Treaty: Signed in 1959, the treaty designates Antarctica as a region devoted to peaceful activities, scientific collaboration, and environmental preservation.
- Membership: Currently, 56 countries are party to the Antarctic Treaty, including India, which became a Consultative Party in 1983 and reaffirmed its commitment through the Antarctic Act in 2022.
- Meeting Frequency: Initially held biennially from 1961 to 1994, the meetings have been annual since 1994.
- 46th ATCM Agenda: The agenda includes discussions on sustainable management of Antarctica, policy, legal matters, biodiversity, inspections, data exchange, research, climate change, tourism, and awareness.
- India's Role: As a Consultative Party, India participates in decision-making alongside other Consultative Parties and has been conducting annual scientific expeditions to Antarctica since 1981.

Understanding the Committee for Environmental Protection (CEP):

- Establishment: Formed in 1991 under the Protocol on Environmental Protection to the Antarctic Treaty (Madrid Protocol).
- Function: The CEP advises the ATCM on matters related to environmental protection and conservation in Antarctica.
- Importance: Both the ATCM and CEP play crucial roles in safeguarding Antarctica's delicate ecosystem and promoting scientific research in the region.

- Annual Meetings: Convened under the Antarctic Treaty System, these meetings serve as platforms for addressing environmental, scientific, and governance issues in Antarctica.
- 26th CEP Agenda: Focuses on evaluating the Antarctic environment, climate change responses, area protection, marine spatial protection, and biodiversity conservation.

Antarctic Treaty Consultative Meeting

Context:
- India is set to play a pivotal role in facilitating the first-ever focused discussions on regulating tourism in Antarctica at the 46th Antarctic Treaty Consultative Meeting (ATCM) and 26th Meeting of the Committee for Environmental Protection (CEP).

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ASEAN-India Trade in Goods Agreement

Context:
- The 4th Joint Committee meeting for the review of AITIGA (ASEAN-India Trade in Goods Agreement) occurred in Putrajaya, Malaysia from May 7-9, 2024.

Initiation and Progress of Review:
- Discussions to review AITIGA and enhance its trade-facilitative aspects commenced in May 2023.
- The Joint Committee overseeing the review process has convened four times thus far.
- Initial meetings finalized the Terms of Reference and the Negotiating Structure for the review negotiations.
- Negotiations for the review commenced from the third meeting held on February 18-19, 2024, in New Delhi.

Trade Dynamics and Outlook:
- ASEAN is a significant trade partner of India, contributing to 11% of India's global trade.
- Bilateral trade between India and ASEAN reached USD 122.67 billion during 2023-24.
- The upgrade of AITIGA is expected to further enhance bilateral trade.
- The next meeting, the 5th Joint Committee meeting, is scheduled from July 29-31, 2024, in Jakarta, Indonesia.

About Association of Southeast Asian Nations (ASEAN)

The Association of Southeast Asian Nations (ASEAN) is a regional intergovernmental organization comprising Ten Countries in Southeast Asia.

Members of ASEAN

1. Indonesia
2. Malaysia
3. Philippines
4. Singapore
5. Thailand
6. Brunei
7. Vietnam
8. Laos
9. Myanmar
10. Cambodia

ASEAN's Objectives:

1. To promote intergovernmental cooperation and facilitates economic, political, security, military, educational, and sociocultural integration among its members and other countries in Asia.
2. To maintain close and beneficial cooperation with existing international and regional organisations.
3. To promote regional peace and stability through abiding respect for justice and the rule of law and adherence to the principles of the United Nations Charter.
4. To accelerate economic growth, social progress and cultural development for a prosperous and peaceful community of Southeast Asian Nations.

A major partner of Shanghai Cooperation Organisation, ASEAN maintains a global network of alliances and dialogue partners and is considered by many as the central union for cooperation in Asia-Pacific.

- The motto of ASEAN is "One Vision, One Identity, One Community".
- ASEAN is headquartered in Jakarta, Indonesia.
- 8th August is observed as ASEAN Day.
- In 1967 ASEAN was established with the signing of the ASEAN Declaration (Bangkok Declaration) by its founding fathers: Indonesia, Malaysia, Philippines, Singapore and Thailand.
- Chairmanship of ASEAN rotates annually, based on the alphabetical order of the English names of Member States.
- ASEAN is the 3rd largest market in the world – larger than EU and North American markets.

ASEAN Plus Three

ASEAN Plus Three is a forum that functions as a coordinator of co-operation between the ASEAN and the three East Asian nations of China, South Korea, and Japan.

ASEAN Plus Six

- further integration to improve existing ties of Southeast Asia was done by the larger East Asia Summit (EAS), which included ASEAN Plus Three as well as India, Australia, and New Zealand.
- The group became ASEAN Plus Six with Australia, New Zealand, and India, and stands as the linchpin of Asia Pacific's economic, political, security, socio-cultural architecture, as well as the global economy.
- This group acted as a prerequisite for the planned East Asia Community which was supposedly patterned after the European Community (now transformed into the European Union).

ASEAN-India Trade in Goods Agreement (AITIGA)

- The ASEAN-India Trade in Goods Agreement was signed and entered into force in 2010.
- Under the Agreement, ASEAN Member States and India have agreed to open their respective markets by progressively reducing and eliminating duties on more than 75% coverage of goods.

ASEAN-India Trade in Services Agreement (AITISA)

- The ASEAN-India Trade in Services Agreement was signed in 2014.
- It contains provisions on transparency, domestic regulations, recognition, market access, national treatment and dispute settlement.

ASEAN-India Investment Agreement (AIIA)

- The ASEAN-India Investment Agreement was signed in 2014.
- The Investment Agreement stipulates protection of investment to ensure fair and equitable treatment for investors, non-discriminatory treatment in expropriation or nationalisation as well as fair compensation.

ASEAN-India Free Trade Area (AIFTA)

- The ASEAN–India Free Trade Area (AIFTA) is a free trade area among the ten member states of the Association of Southeast Asian Nations (ASEAN) and India.
- The free trade area came into effect in 2010.
- The ASEAN–India Free Area emerged from a mutual interest of both parties to expand their economic ties in the Asia-Pacific region.
- India's Look East policy was reciprocated by similar interests of many ASEAN countries to expand their interactions westward.
- The signing of the ASEAN-India Trade in Goods Agreement paves the way for the creation of one of the world's largest FTAs – a market of almost 1.8 billion people with a combined GDP of US $ 2.8 trillion.
- The AIFTA will see tariff liberalisation of over 90% of products traded between the two dynamic regions, including the so-called "special products," such as palm oil (crude and refined), coffee, black tea and pepper.

High Inflation in Pulses Strains Consumers and Impacts Self- Sufficiency Goals

Context:

- Pulses recorded an annual retail inflation of 16.84% in April 2024, exacerbating consumer hardship, especially since pulses are seldom distributed through the public distribution system (PDS). Food inflation pressures, driven by an El Niño event and an election year, have reversed the nation's progress towards achieving near self-sufficiency in pulse production.

Dimensions of the Article:

1. Pulses Production in India
2. Cause and Effect of the Inflation in Pulses
3. Sign of Relief and Challenges Ahead

Pulses Production in India

Major Protein Sources:

Pulses are crucial protein sources in the diet, grown in all three seasons in India.
- Kharif: Arhar, Urad, Moong
- Rabi: Gram, Lentil, Pea
- Summer: Greengram, Blackgram, Cowpea

Leading Producer:

- India has over 35 Mha of pulses cultivation area, making it the largest pulses producing country globally.
- Ranks first in area (37%) and production (29%).

Increased Productivity:

- Productivity in 2021-22 was 932 kg/ha, showing significant growth over the last five years.

Government Initiatives:

National Food Security Mission (NFSM)-Pulses:

- Implemented by the Department of Agriculture & Farmers Welfare.
- Aims to increase production through area expansion and productivity enhancement across 28 states and 2 UTs (J&K and Ladakh).

Research and Development:

- ICAR is conducting basic and strategic research to enhance the productivity potential of pulses.

PM Annadata Aay Sanrakshan Abhiyan (PM-AASHA):

- Ensures remunerative prices for farmers.
- Includes Price Support Scheme (PSS), Price Deficiency Payment Scheme (PDPS), and Private Procurement Stockist Scheme (PPSS).
- Guarantees Minimum Support Price (MSP) for notified oilseeds, pulses, and copra.

The Current Prices of Pulses as per the Department of Consumer Affairs Chana (Chickpea):

- Cheapest available pulse.
- Average all-India modal price: Rs 85 per kg (May 23), up from Rs 70 a year ago.

Arhar/Tur (Pigeon Pea):

- Price increased from Rs 120 to Rs 160 per kg.

Urad (Black Gram) and Moong (Green Gram):

- Prices rose from Rs 110 to Rs 120 per kg.

Masoor (Red Lentil):

- Only pulse with a decreased modal retail price, from Rs 95 to Rs 90 per kg.

Cause and Effect of the Inflation in Pulses

Cause - Decline in Domestic Pulses Production

Decrease in Production:

- Production fell from 27.30 million tonnes (mt) in 2021-22 and 26.06 mt in 2022-23 to 23.44 mt in 2023-24.
- Causes include irregular/deficient monsoon caused by El Niño and winter rain.

Impact on Farmers:

- Farmers in Karnataka, Maharashtra, Andhra Pradesh, and Telangana planted less area due to irregular/deficient rainfall.
- Chana and arhar pulses saw the highest inflation due to sharp output falls.

Effect - Surge in Imports

Government Measures:

- Central government phased out tariffs and quantitative restrictions (QR) on most pulse imports due to food inflation pressures.

Import Statistics:

- India's pulses imports valued at $3.75 billion in 2023-24, highest since 2015-16 and 2016-17.
- Import of major pulses totaled 4.54 mt in 2023-24, up from 2.37 mt and 2.52 mt in the preceding two fiscals.

Effect - Reversal of Relative Self-Sufficiency

Increased Production:

- Domestic pulses production rose from 16.32 mt to 27.30 mt between 2015-16 and 2021-22 due to government incentives.
- Policy measures included MSP-based procurement and levying duties on imports.

Short-Duration Varieties:

- Development of short-duration (50-75 day) chana and moong varieties increased production.
- Allowed planting of up to four crops a year: kharif (post-monsoon), rabi (winter), spring, and summer.

Sign of Relief and Challenges Ahead

La Niña

- Climate Projections: El Niño expected to shift into a neutral phase next month, with a chance of La Niña, linked to abundant rainfall in the subcontinent.

Unstable Domestic Supply

- Government Procurement: Government agencies have procured very little chana from this year's crop compared to 2.13 mt in 2023 and 2.11 mt in 2022.
- Duty-free imports of urad, masoor, desi chana, and arhar/tur approved till March 31, 2025.

Import of Cheaper Substitutes

- Alternatives to Chana: Yellow/white peas can be imported for between Rs 40 and Rs 41 per kg as a less expensive alternative to chana.
- Replacing Arhar/Tur: Masoor dal is increasingly used instead of arhar or tur in many eateries for making sambar.
- Increased Imports: Anticipated increase in imports of pulses from Russia, Australia, and Canada, as well as urad and arhar/tur from East Africa and Myanmar.

CSIR and DSIR Unveil Electric Tiller to Support Small Farmers

Context:

- In a bid to empower small and marginal farmers, the Council of Scientific and Industrial Research (CSIR) and the Department of Scientific and Industrial Research (DSIR) have introduced the CSIR-Central Mechanical Engineering Research Institute's Electric Tiller.

Electric Tiller for Small to Marginal Farmers

Target Users

- Small to Marginal Farmers: Designed for farmers with land holdings of less than 2 hectares, who represent over 80% of India's farming community.

Features and Benefits

Enhanced Performance:

- Torque and Field Efficiency: Offers superior torque and efficiency in the field, making it a reliable agricultural tool.

User and Environmental Focus:

- Comfort and Sustainability: Features reduced hand-arm vibration, quiet operation, and zero exhaust emissions, ensuring user comfort and environmental sustainability.

Cost Reduction:

- Operational Costs: Can reduce operational costs by up to 85%, providing significant financial benefits to farmers.

Versatility and Convenience:

- User-Friendly Design: Supports battery pack swapping and multiple charging options, including AC and Solar DC charging.

About CSIR

- The Council of Scientific & Industrial Research (CSIR), known for its cutting edge R&D knowledge base in diverse S&T areas, is a contemporary R&D organization.
- CSIR has a dynamic network of 37 national laboratories, 39 outreach centres, 3 Innovation Complexes, and five units with a pan-India presence.
- CSIR is funded by the Ministry of Science and Technology and it operates as an autonomous body through the Societies Registration Act, 1860.

- CSIR covers a wide spectrum of science and technology – from oceanography, geophysics, chemicals, drugs, genomics, biotechnology and nanotechnology to mining, aeronautics, instrumentation, environmental engineering and information technology. It provides significant technological intervention in many areas concerning societal efforts, which include environment, health, drinking water, food, housing, energy, farm and non-farm sectors. Further, CSIR's role in S&T human resource development is noteworthy.
- It provides significant technological intervention in many areas with regard to societal efforts which include the environment, health, drinking water, food, housing, energy, farm and non-farm sectors.
- Established: September 1942
- Headquarters: New Delhi

Structure of the Organisation

- President: Prime Minister of India (Ex-officio)
- Vice President: Union Minister of Science and Technology (Ex-officio)
- Governing Body: The Director-General is the head of the governing body.
- The other ex-officio member is the finance secretary (expenditures).
- Other members' terms are of three years.

Objectives

- Promotion, guidance and coordination of scientific and industrial research in India including the institution and the financing of specific researchers.
- Establishment and assistance to special institutions or departments of existing institutions for the scientific study of problems affecting particular industries and trade.
- Establishment and award of research studentships and fellowships.
- Utilization of the results of the research conducted under the auspices of the Council towards the development of industries in the country.
- Payment of a share of royalties arising out of the development of the results of research to those who are considered as having contributed towards the pursuit of such research.
- Establishment, maintenance and management of laboratories, workshops, institutes and
- organisations to further scientific and industrial research.
- Collection and dissemination of information in regard not only to research but to industrial matters generally.
- Publication of scientific papers and a journal of industrial research and development.

Indian Agricultural Research Institute (IARI):

Context:

- The Indian Agricultural Research Institute (IARI) recently introduced a new high-yielding wheat seed variety, HD 3386.

Overview:

- The Indian Agricultural Research Institute (IARI) is the largest and foremost institute in India dedicated to research, higher education, and training in agricultural sciences.
- Located in Delhi, it operates under the administration of the Indian Council of Agricultural Research (ICAR).

Indian Agricultural Research Institute

History:

- Establishment: Founded in 1905 at Pusa, Bihar, with a generous grant from American philanthropist Henry Phipps.
- Early Years: Initially known as the Agricultural Research Institute (ARI), it operated with five departments covering various agricultural aspects.
- Name Changes: Renamed as the Imperial Institute of Agricultural Research in 1911, and later as the Imperial Agricultural Research Institute in 1919.
- Relocation: Moved to Delhi following a devastating earthquake in 1934.

- Post-Independence: Renamed as the Indian Agricultural Research Institute after India gained independence.
- Status: Attained deemed university status in 1958.

Mandate:

- Basic and strategic research in field and horticultural crops to enhance productivity and quality. Development of resource-efficient integrated crop management technologies for sustainable agricultural production systems.
- Academic excellence in post-graduate and human resources development in agricultural science.
- Leadership in agricultural research, education, extension, and technology assessment and transfer, serving as a national referral point for quality and standards.

Contributions:

- "Green Revolution": IARI played a pivotal role in the research leading to the Green Revolution in India during the 1970s, which significantly increased agricultural productivity and transformed the country's agricultural landscape.

DRDO Tests Long-Range Supersonic Missile Assisted Torpedo

Context:

- The Defence Research and Development Organisation (DRDO) has achieved a significant milestone with the successful testing of the long-range Supersonic Missile Assisted Torpedo (SMART). This development is geared towards enhancing the Navy's anti-submarine warfare capabilities.

Supersonic Missile Assisted Torpedoes (SMART) system

- The Supersonic Missile Assisted Torpedoes (SMART) system is a significant advancement in underwater warfare technology. Here's an overview:

Background: Torpedoes

- Torpedoes are self-propelled weapons designed to travel underwater and hit a target. However, they are limited by their range.

About SMART:

- SMART involves the modification of a supersonic missile system to launch torpedoes. This enables the torpedo to achieve a much longer range than it could on its own.
- For example, a torpedo with a range of only a few kilometers can be launched to distances of up to 1000 km using the SMART system.

Institutions Involved:

- Several DRDO laboratories, including the Defence Research and Development Laboratory (DRDL), Research Centre Imarat (RCI), Aerial Delivery Research and Development Establishment (ADRDE), and Naval Science and Technology Laboratory (NSTL) have developed the necessary technologies for SMART.

Features:

- The SMART system can be launched from both coasts and warships, providing flexibility in deployment.
- It comprises a canister-based missile system with advanced subsystems such as two-stage solid propulsion and precision inertial navigation.
- Canisters are filled with inert gases to protect the missile during storage and transportation.
- The system carries an advanced lightweight torpedo missile as a payload, equipped with a parachute-based release mechanism.

Significance:

- SMART significantly extends the range of lightweight torpedoes, allowing them to target submarines hundreds of kilometers away, beyond the conventional range.
- It provides a rapid response capability in detecting and neutralizing enemy submarines, particularly in situations where other assets may not be readily available.

Green Credit Programme:

Context:

- The Centre has approved 12 greening projects under the Green Credit Program (GCP) and estimates of 24 plans submitted by different state forest departments are under consideration.

Green Credit Programme:

- The Green Credit Programme introduces a system of incentives, known as "Green Credits," for activities that have a positive impact on the environment.
- It complements the domestic Carbon Market in India, expanding beyond CO_2 emission reductions to incentivize a wider range of sustainable actions.

Objectives:

- The Green Credit System aims to meet various environmental obligations, encouraging companies, individuals, and local bodies to undertake sustainable initiatives.
- Unlike the carbon market's focus on CO_2 emissions, the Green Credit Programme promotes broader environmental goals.

Tradable Credits:

- Green credits earned through sustainable activities will be tradable, allowing participants to sell them on a proposed domestic market platform.
- This creates a market-based approach to incentivize and reward environmentally beneficial actions.

Program Administrator:

- The Indian Council of Forestry Research and Education (ICFRE) will serve as the administrator of the Green Credit Programme.
- ICFRE will develop guidelines, processes, and procedures for the implementation of the programme, ensuring its effectiveness and integrity.

Green Credit Activities:

The programme promotes a range of activities that contribute to environmental sustainability, including:

- Increasing Green Cover: Promoting tree plantation and related activities to enhance the green cover across the country.
- Water Conservation: Encouraging water conservation, water harvesting, and efficient water use, including the treatment and reuse of wastewater.
- Regenerative Agriculture: Promoting natural and regenerative agricultural practices and land restoration to improve productivity, soil health, and the nutritional value of food produced.
- Waste Management: Supporting sustainable waste management practices, including collection, segregation, and treatment.
- Air Pollution Reduction: Encouraging measures to reduce air pollution and other pollution abatement activities.
- Mangrove Conservation: Promoting the conservation and restoration of mangroves, important ecosystems for coastal areas.
- Ecomark Label: Encouraging manufacturers to obtain the "Ecomark" label for their goods and services, signifying their environmental sustainability.
- Sustainable Infrastructure: Encouraging the construction of buildings and infrastructure using sustainable technologies and materials.
- Setting Thresholds and Benchmarks: The Green Credit Programme will establish thresholds and benchmarks for each specific Green Credit activity, ensuring clear standards and targets for participants to achieve.

Green Credit Rules, 2023: Overview

Notification and Legal Basis

- Introduced on 12th October 2023 under the Environment Protection Act of 1986.

Objective

- Establish a mechanism promoting voluntary environmental actions leading to the issuance of green credits.
- Initial focus on voluntary tree plantation on degraded land, waste land, watershed areas, etc., managed by Forest departments.

Implementation of the Green Credit Program (GCP)

Afforestation Financing

- Registered and approved entities can finance afforestation projects in designated degraded forest and wasteland areas.
- Afforestation activities will be executed by State Forest departments.

Green Credit Valuation

- Two years post-planting, each tree undergoes evaluation by the International Council of Forestry Research and Education (ICFRE).
- Each planted tree can potentially earn one 'green credit'.

Utilization of Green Credits

- Companies that have converted forest land for non-forest uses and removed numerous trees can use green credits to fulfill obligations under India's compensatory afforestation laws.

Available Land for Green Credit Projects

- 10 States have identified approximately 3,853 hectares of degraded forest land for individuals, groups, and public/private sector units to earn and potentially trade green credits.
- Chhattisgarh and Madhya Pradesh (MP) together represent about 40% of the available forest land.

Compensatory Afforestation: Overview

Definition

- Compensatory afforestation mandates industries or institutions, permitted to clear forest land for non-forestry purposes,
  - o Provide equivalent non-forest land to forest authorities, and
  - o Fund afforestation on the provided land.
- Land must ideally be near the cleared forest tracts.
- If unavailable, twice the amount of 'degraded' forest land can be used for afforestation.

Additional Compensation

- Companies must compensate for the lost forest ecosystem's value, known as the 'net present value', due to land diversion.

Issues with Compensatory Afforestation and the Green Credit Program (GCP) Challenges

- Obtaining contiguous non-forest land for compensatory afforestation, particularly in States like Chhattisgarh and Madhya Pradesh with historical land diversions for mining.
- The Compensatory Afforestation Fund, funded by environmental compensation from companies, has substantial unspent funds due to land availability issues.

Green Credit Challenges

- Assigning a monetary value to green credits is problematic.
- Linking green credits to compensatory afforestation activities is complex.

Poorvi Lehar

Context:

- Recently, the Indian Navy conducted a Military Exercise named "Poorvi Lehar" on the Eastern Coast of India.

About Poorvi Lehar:

Objective:

- The exercise aimed to assess the Indian Navy's preparedness to meet Maritime Security challenges in the region.

Participants:

- Participation included ships, submarines, aircraft, and special forces from the Indian Air Force (IAF), Andaman & Nicobar Command, and Coast Guard, showcasing a high degree of interoperability among the services.

Phases:

- Tactical Phase: Conducted combat training in realistic scenarios to enhance operational readiness.
- Weapon Phase: Successfully conducted various firings to test and validate weaponry capabilities.

Maritime Domain Awareness:

- Continuous maritime domain awareness was maintained throughout the area of operations through the operation of aircraft from diverse locations, ensuring comprehensive surveillance and reconnaissance.

Capability Demonstration:

- The exercise reaffirmed the Indian Navy's capability to deliver ordnance on target, showcasing precision and effectiveness in military operations.

Exercise SHAKTI

Context:

- The 7th iteration of the India-France Joint Military Exercise SHAKTI has begun at Umroi, Meghalaya.

Exercise SHAKTI Overview

- SHAKTI is held biennially, alternating between India and France, with the previous edition taking place in France in November 2021.
- It aims to enhance joint military capabilities in conducting multi-domain operations under Chapter VII of the United Nations Mandate.

Composition of Contingents

- The Indian contingent comprises 90 personnel, primarily from the RAJPUT Regiment, with representation from other arms and services, as well as observers from the Indian Navy and Indian Air Force.
- The French contingent consists of 90 personnel primarily from the 13th Foreign Legion Half- Brigade (13th DBLE).

Objectives and Focus Areas

- The exercise focuses on operations in semi-urban and mountainous terrain, aiming to achieve a high level of physical fitness and refine tactical-level operations.
- Key objectives include sharing best practices and promoting interoperability between the armed forces of both nations.

Tactical Drills

- Tactical drills will cover various scenarios, such as responding to terrorist actions, establishing joint command posts, and employing drones and counter-drone systems.

Promoting Cooperation and Bilateral Relations

- Exercise SHAKTI aims to strengthen camaraderie and cooperation between the armed forces of India and France, further enhancing bilateral defense cooperation and fostering friendly relations.

India to Secure Coking Coal and Critical Minerals from Mongolia

Syllabus: GS3/Economy

Context

- India looks to advance into Mongolia to secure coking coal and critical minerals like copper and rare earth elements.

About

- Joint working groups have been set up with the Mongolian embassy to explore the possibility of collaborating with the land-locked Central Asian nation.
- However, the evacuation of minerals continues to be an area of concern.
- India is unwilling to route its evacuation process through China, alternative routes through Russia are being explored.

What are Critical Minerals?

- Critical minerals are elements that are the building blocks of essential modern-day technologies, and are at risk of supply chain disruptions.
- The lack of availability of these minerals or the concentration of extraction or processing in a few geographical locations could potentially lead to "supply chain vulnerabilities and even disruption of supplies".

Applications of Critical Minerals

- Clean technologies initiatives such as zero-emission vehicles, wind turbines, solar panels etc.
- Critical minerals such as Cadmium, Cobalt, Gallium, Indium, Selenium and Vanadium and have uses in batteries, semiconductors, solar panels, etc.
- Advanced manufacturing inputs and materials such as defense applications, permanent magnets, ceramics.
- Minerals like Beryllium, Titanium, Tungsten, Tantalum, etc. have usage in new technologies, electronics and defense equipment.
- Platinum Group Metals (PGMs) are used in medical devices, cancer treatment drugs, and dental materials.
- List of Critical Minerals
- Different countries have their own unique lists of critical minerals based on their specific circumstances and priorities.
- A total of 30 minerals were found to be most critical for India, out of which two are critical as fertilizer minerals: Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium and Cadmium.

Minerals Security Partnership

– MSP is a strategic grouping of 15 member states including Australia, Canada, Finland, France, Germany, Japan, the Republic of Korea, Sweden, the United Kingdom, US, the European Union, Italy, Norway, Estonia and India.
– It aims to catalyse public and private investment in critical mineral supply chains globally.
– India is already a member of the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development, which supports the advancement of good mining governance.

Coking Coal

- Coking coal, also known as metallurgical coal or "met coal," is a type of coal that is used in the steelmaking process.
- It's essential in the production of coke, a key component in the steelmaking process.

- Coking coal needs to have specific properties such as high carbon content, low sulfur and phosphorus content, and strong coking properties to be suitable for steelmaking.
- India is dependent on coking coal imports from Australia, the U.S. and Russia.

Way Ahead

- India is collaborating with countries such as Africa, Argentina, Australia and Mongolia to secure its energy requirements.
- Critical minerals have become essential for economic development and national security in the country.
- Minerals such as Lithium, Cobalt etc. have gained significance in view of India's commitment towards energy transition and achieving net-zero emission by 2070.

SEBI's Proposal for Indian Mutual Funds and Overseas Investments

Syllabus: GS3/Economy

Context

- SEBI proposes a framework for facilitating investments by domestic mutual funds (MFs) in their overseas counterparts, or unit trusts (UTs) that invest a certain portion of their assets in Indian securities.

Background

- Mutual funds in India are not explicitly permitted to invest in overseas mutual fund units, which have exposure to Indian securities.
- However, if the fund has significant exposure to Indian securities, the purpose of making an overseas investment is defeated.
- Also an indirect investment through an (indirect) overseas investing instrument is not cost-effective for an end-investor in comparison to a direct investment made in Indian securities — thus, fulfilling no purpose.

> **What are Mutual Funds?**
> – A mutual fund is a pool of money managed by a professional Fund Manager.
> – It is a trust that collects money from a number of investors who share a common investment objective and invests the same in equities, bonds, money market instruments and/or other securities.
> – The income / gains generated from this collective investment is distributed proportionately amongst the investors after deducting applicable expenses and levies.

Need for the Proposed Framework

- SEBI observes that Indian securities offer an attractive investment opportunity for foreign funds.
- This has led to several international indices, exchange traded funds (ETFs), MFs, and UTs allocating a part of their assets towards Indian securities.
- Indian mutual funds diversify their portfolios by launching 'feeder funds' which invest in overseas instruments such as (units of) MF, UTs, ETFs and/or index funds. Other than diversification, it eases the path to make global investments.

Proposals floated by SEBI

- The upper limit for investments made by overseas instruments (in India) has been capped at 20% of their net assets.
- It would help strike a balance between facilitating investments in overseas funds with exposure to India and preventing excessive exposure.
- Indian mutual funds must also ensure that all investors of the overseas instrument are receiving gains proportionate to their contribution – and in no order of preference.
- Indian mutual funds would have to ascertain that the overseas instrument is managed by an "officially appointed, independent investment manager/fund manager" who is "actively involved in making all investment decisions for the fund."
- SEBI stresses that these investments are to be made autonomously by the manager without any influence from the investors or undisclosed parties.
- SEBI is also seeking public disclosures of the portfolios of such overseas MF/UTs periodically for the sake of transparency.

- It also warns against the existence of any advisory agreement (business agreement) between the Indian mutual fund and the overseas MF/UT.
- This is to prevent conflict of interest and avoid any undue advantage.

Breach of the 20% limit

- If the overseas instrument breaches the 20% limit, the Indian mutual fund scheme which is investing in the overseas fund would slip into a 6-month observance period.
- This period is to be utilized by the overseas fund to rebalance its portfolio adhering to the cap.
- During this time, the domestic mutual fund cannot undertake any fresh investment in the overseas MF/UT.
- If the portfolio is not rebalanced within the observation period, the Indian mutual fund must liquidate its investment in the overseas instrument within 6 months.

Concluding remarks

- Investments in international markets provide diversification opportunities to Indian investors. They also provide investment opportunities in sectors or industries that may not be available in the Indian listed market space.
- Therefore, they are a useful avenue for diversifying investor portfolios as well as generating significant risk adjusted returns.

Consumption Divide Across Indian States

Syllabus: GS3/Economy

Context

- Economists at the public sector Bank of Baroda have published a report about the finances of Indian states for the financial year ended March (FY2024).

About

- The report analyses state-level finances based on three variables: how much money they raised on their own, how much they spent to boost productive capacities of the state, and how much they borrowed from the market.

Major Findings

- Fiscal Deficit: Most states were able to limit their fiscal deficit (the amount of money they had to borrow to bridge the gap between expenses and income) within the budgeted levels.
- This is a significant achievement, since over-borrowing by states adds to the Centre's over-borrowings, and ultimately leaves less money for private sector firms to borrow.
- Less investible funds imply higher borrowing costs for everything from home and car loans to factory loans.
- Large states such as Gujarat, Maharashtra, Odisha, and Tamil Nadu undershot their budgeted borrowings by over 30%.
- Capital spends: It goes into making productive assets such as roads and bridges, which boost economic activity in the state.
- Taken together, states managed to spend only 84% of their capex budget.
- Uttar Pradesh, Telangana, Bihar and Sikkim either spent the full amount or went beyond the target. Punjab, Chhattisgarh, and Nagaland — spent less than 50% of their capex budget.
- Tax revenues: A state's total tax revenues can be broadly divided into two heads: own tax revenues (OTR), and share in Union taxes.
- OTR accounted for around 61% of tax revenues of states.
- A higher share of OTR helps a state to be more fiscally resilient.
- Telangana had the highest share of OTR in total tax revenue (82%), closely followed by Haryana (79%), Karnataka (78%), Kerala (77%), Maharashtra (73%), and Tamil Nadu (71%).
- Consumption Based Tax: GST is a consumption-based tax — that is, it is paid at the point where a good or service is consumed.
- The distribution of per capita GST across states is a reflection of consumption taking place in the country. Higher consuming states end up paying higher taxes like GST and sales tax/excise duty.

- Those states where consumption capacity is constrained have to depend progressively on more transfers from the Union taxes as directed by the Finance Commission.
- Consumption Divide: The average per capita GST collection of the 25 states considered by the researchers was Rs 7,029.
- North-South Divide: States in North India fall well below the national average, while states in the South pull up the national average.
- Per-capita GST levels in Karnataka or Telangana are almost 3-4 times that of Madhya Pradesh and Jharkhand, which shows the relative lack of prosperity of the average citizen in the latter states.
- East-West Divide: Consumption levels in Maharashtra and Gujarat are far in excess of those in Odisha, West Bengal and Assam.
- There are some exceptions — such as Haryana in the North — but a broad divide is clearly visible.

CONSUMPTION PATTERNS, STATES AND PER CAPITA GST (IN RS)

State	Per capita GST (in Rs)	State	Per capita GST (in Rs)
Sikkim	33,574	Average for these 25 states	7,029
Mizoram	17,928	Punjab	6,572
Nagaland	13,620	Uttar Pradesh	5,822
Karnataka	12,452	Odisha	5,210
Telangana	12,296	Meghalaya	5,197
Haryana	11,542	Bihar	4,994
Maharashtra	11,358	Rajasthan	4,764
Kerala	10,443	Chhattisgarh	4,645
Andhra Pradesh	8,613	Madhya Pradesh	4,440
Gujarat	8,253	West Bengal	4,156
Tamil Nadu	8,096	Assam	4,154
Uttarakhand	7,235	Tripura	3,885
Himachal Pradesh	7,200	Jharkhand	3,185

Source: BoB, Indian Express Research

Internationalisation of Rupee

Syllabus: GS3/Economy

Context

- The RBI will permit opening of rupee (INR) accounts outside India by persons resident outside India (PROIs) as part of the 2024-25 agenda for internationalisation of the domestic currency.

About

- This move will enable Indian banks to extend rupee-denominated loans to individuals residing outside India.
- Additionally, the RBI will facilitate foreign direct investment and portfolio investment through specialized accounts, such as special non-resident rupee and special rupee vostro accounts.
- The Rationalisation of regulations towards promoting the internationalisation of the INR was undertaken to enable the settlement of bilateral trade in local currencies.

What is an International Currency?

- A currency can be termed "international" if it is widely accepted worldwide as a medium of exchange.
- Just like a domestic currency, an international currency performs the three functions of money – as a medium of exchange, a unit of account, and a store of value.
- An international currency is used and held beyond the borders of the issuing country for transactions between residents and non-residents, and between residents of two countries other than the issuing country.

What is Currency Internationalization?

- Currency internationalization is the use of a currency outside the borders of its country of issue.
- The level of currency internationalization for a currency is determined by the demand that users in other countries have for that currency.
- This demand can be driven by the use of the currency to settle international trade, to be held as a reserve currency or a safe-haven currency, or in general use as a medium of indirect exchange in other countries' domestic economies via currency substitution.
- The US dollar has been the dominant global currency for the better part of the last century.
- Its position is supported by a range of factors, including the size of the US economy, the reach of its trade and financial networks, the depth and liquidity of US financial markets, and a history of macroeconomic stability and currency convertibility.

Benefits of Currency Internationalization

- Limit Exchange Rate Risk: As the internationalisation of a country's currency broadens and deepens its financial market, domestic firms are able to invoice and settle their exports/imports in their currency, thus shifting exchange rate risk to their foreign counterparts.
- Access to international financial markets: It permits domestic firms and financial institutions to access international financial markets without assuming exchange rate risk.
- Boost capital formation: A larger, more efficient financial sector serve the domestic non-financial sector better by reducing the cost of capital and widening the set of financial institutions that are willing and able to provide capital.
- This would boost capital formation in the economy thereby increasing growth and reducing unemployment.
- Finance Budget Deficit of Government: Currency internationalisation allow a country's government to finance part of its budget deficit by issuing domestic currency debt in international markets rather than issuing foreign currency instruments.
- Foreign exchange reserves: It reduces the requirement for the authorities to maintain and depend on large foreign exchange reserves in convertible currencies to manage external vulnerabilities.
- Repay external sovereign debt: At the macroeconomic level, internationalisation of a currency results in lowering the impact of sudden stops and reversals of capital flows and enhances the ability to repay external sovereign debt.

Challenges

- Conflict with domestic monetary policy: The obligation of a country to supply its currency to meet the global demand may come in conflict with its domestic monetary policies, popularly known as the Triffin dilemma.
- Highlight external shocks: The internationalisation of a currency may accentuate an external shock, given the open channel of the flow of funds into and out of the country and from one currency to another.
- Exchange rate volatility: The costs also emanate from the additional demand for money and also an increase in the volatility of the demand. With the advances in statistical reporting, most central banks can separate foreign demand for money, but with regard to some components, such as cash, uncertainty remains.
- The main costs of allowing greater international use of the currency emerge from the possible increased volatility in the exchange and money markets, thus making the conduct of monetary policy more complex.

Can the Rupee become an international currency?

- During the last two decades, India has emerged as one of the world's fastest growing economies and also a preferred destination for global investors. The Indian economy has also shown remarkable resilience against adverse global developments, especially during the COVID-19 pandemic.
- There is some anecdotal evidence that INR is accepted to some extent in Singapore, Malaysia, Indonesia, Hong Kong, Sri Lanka, United Arab Emirates (UAE), Kuwait, Oman, Qatar and the United Kingdom (UK), among others, while it is legal tender in Nepal and Bhutan.
- It is argued that the bilateral currency swap arrangements may provide a blueprint for reducing the dependence on the US dollar for settling trade transactions.
- China has followed a similar approach by using a large number of bilateral swaps and Lines of Credit (LoC) to encourage the use of the Renminbi for international trade transactions.

Way Ahead

- Overall, the benefits of internationalisation in terms of limited exchange rate risk, lower cost of capital due to better access to international financial markets, and reduced requirement of foreign exchange reserves far outweigh the concerns.
- Further, as the internationalisation of a currency is a long-drawn process involving continuous change and incremental progress, it would enable timely redressal of the associated concerns and challenges as we move forward.

Variable Rate Repo (VRR)

Syllabus: GS3/ Economy

In Context

- The Reserve Bank of India (RBI) uses tools like VRR (Variable Rate Repo) and VRRR (Variable Rate Reverse Repo) to manage liquidity in the banking system.

VRR (Variable Rate Repo) and VRRR (Variable Rate Reverse Repo)

- The RBI conducts auctions where banks can bid for funds. The interest rate is determined by the market, i.e., the rate at which banks are willing to borrow. This is different from the fixed repo rate, which is the rate at which banks can borrow directly from the RBI.
- Typically lasting up to 14 days, VRR serves as a means to inject short-term liquidity into the banking system.
- Similar to VRR, the RBI conducts auctions where banks can invest their surplus funds. The interest rate is also determined by the market called VRRR (Variable Rate Reverse Repo).

India's FDI Inflow Decreases

Syllabus: GS3/ Economy

In Context

- FDI equity inflows into India declined to a five-year low of $44.42 billion in FY24, a 3.5% decrease compared to the previous year.

Key Points

- Top Sources of FDI: Singapore remained the top investor with $11.77 billion, followed by Mauritius ($7.97 billion), the United States ($4.99 billion), and the Netherlands ($4.92 billion).
- Leading Sectors: The computer software and hardware sector was the highest recipient of FDI.
- Geographical Distribution: Maharashtra continued to attract the most FDI, with $15.11 billion.
- Reason for Decline in FDI Inflows: High interest rates in advanced economies made investments in India less attractive.
- Some sectors in India, like IT and startups, have reached a saturation point in terms of investment.

Impacts

- Reduced FDI can impact economic growth as it is a crucial source of capital and technology transfer.
- The decline may signal a decrease in investor confidence in the Indian market.

Foreign Direct Investment (FDI)

- It refers to the conditions when a company or investor takes ownership and controls operation in a business entity in another country.
- With FDI, foreign companies are directly involved with day-to-day operations in the other country which implies that along with bringing money, they also bring knowledge, skills and technology.
- It is an important non-debt monetary source for India's economic development.
- Economic liberalisation started in India in the wake of the 1991 crisis and since then, FDI has steadily increased in the country.

FDI Routes

- Government Route: For investment in business sectors requiring prior approval from the Foreign Investment Promotion Board (FIPB).
- Automatic Route: For investment in business sectors that do not require prior approval from the government.

Categories

- Horizontal: It refers to the investor establishing the same type of business operation in a foreign country as it operates in its home country.
- Vertical: It is the one in which different but related business activities from the investor's main business are established or acquired in a foreign country, such as when a manufacturing company acquires an interest in a foreign company that supplies parts or raw materials required for the manufacturing company.
- Conglomerate: It is one where a company or individual makes foreign investment in a business that is unrelated to its existing business in its home country.

RBI's Gold Reserve

Syllabus: GS3/Economy

Context

- Recently, the Reserve Bank of India (RBI) has transferred 100 metric tonnes of gold from the United Kingdom to domestic vaults in FY24.

About the Gold Reserve

- It is the gold held by a country's central bank (RBI in case of India), acting as a backup for financial promises and a store of value.
- India, like other nations, stores some of its gold reserves in foreign vaults to spread out risk and facilitate international trading.
- India's total gold holding now stands at 822 metric tonnes in FY24.
- India's gold reserves are primarily stored in the Bank of England, which is known for its stringent security protocols.
- The RBI stores a portion of its gold reserves at the Bank for International Settlements (BIS) in Basel, Switzerland, and the Federal Reserve Bank of New York in the United States.

> **Do You Know?**
> – During India's foreign exchange crisis in 1990-91, the country pledged some of its gold reserves to the Bank of England to secure a $405 million loan.
> – Even though the loan was paid back by November 1991, India decided to keep the gold in the UK for convenience.

Countries with the most gold reserves

- As estimated by the World Gold Council, the current rankings of gold reserves by country in Q1(2024) are United States of America (8,133.46 tonnes), Germany (3,352.65 tonnes), 3 Italy (2,451.84 tonnes), France (2,436.88 tonnes), Russian Federation (2,332.74 tonnes), China (2,262.45 tonnes), Switzerland (1,040.00 tonnes), Japan (845.97 tonnes), India (822.09 tonnes), and Netherlands (612.45 tonnes) etc.

Global Public Debt Hits $97 Trillion in 2023

Syllabus: GS3/Economy

Context

- A report titled "A world of debt: A growing burden to global prosperity", highlights the unprecedented surge in global public debt, which reached a historic peak of $97 trillion in 2023.
- The report was prepared by the UN Trade and Development (UNCTAD).

Key findings of the report

- The number of African countries with debt-to-GDP ratios above 60% has increased from 6 to 27 between 2013 and 2023.

- In 2023, developing nations paid $847 billion in net interest, a 26% increase from 2021.
- The report revealed that 3.3 billion individuals reside in nations where interest payments exceed spending on education and health combined.
- In 2023, public debt in developing countries hit $29 trillion, or about 30% of the total worldwide, an increase from a 16% share in 2010.
- Since 2010, the portion of external public debt owed to private creditors has risen across all regions, accounting for 61% of developing countries' total external public debt in 2022.
- The "cascading crises" and the sluggish and uneven performance of the global economy underpinned the rapid increase in global public debt, which is rising at twice the rate in developing countries than in richer ones.

> ## Borrowing costs of developing countries are higher than those of developed ones

Bond yields of developing and developed countries (2020-2024)

Germany	USA	Asia and Oceania	Latin America and the Caribbean	Africa
0.8	2.5	5.3	6.8	9.8
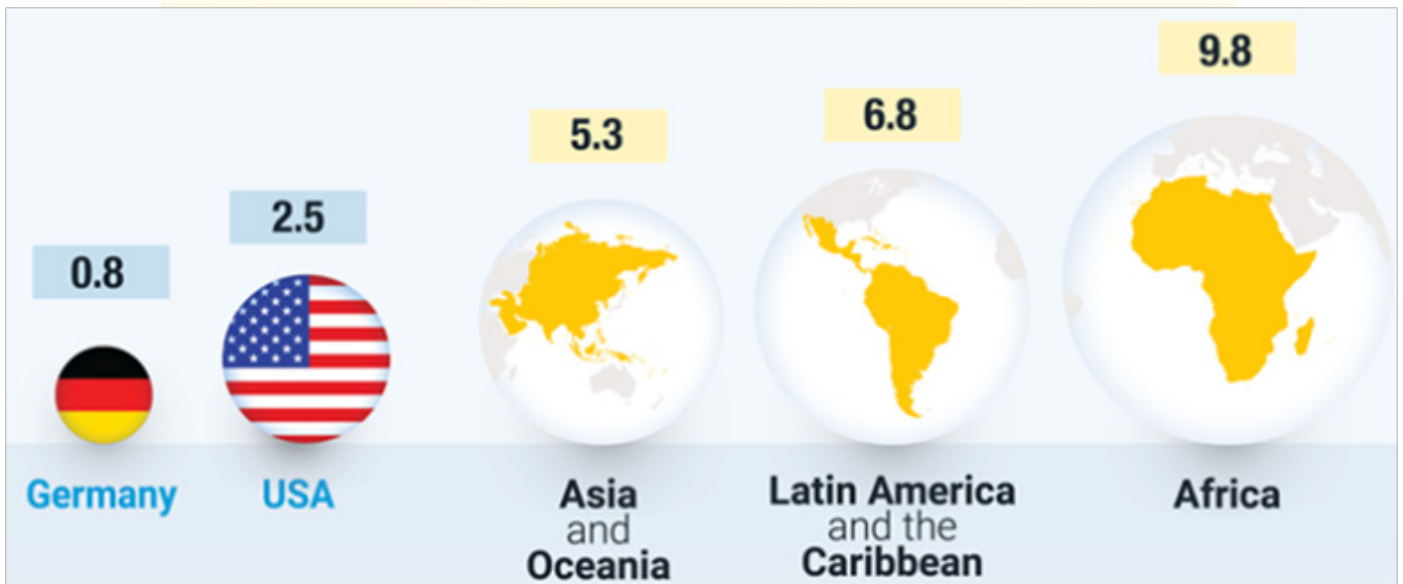
Public debt of India

- India's public debt-to-GDP ratio has barely increased from 81% in 2005-06 to 84% in 2021-22, and is back to 81% in 2022-23.
- As per the Fiscal Responsibility and Budget Management (FRBM) Act 2003, the general government debt was supposed to be brought down to 60% of GDP by 2024-25.
- The IMF states that India's general government debt, including the Centre and States, could be 100% of GDP under adverse circumstances by fiscal 2028.
- It has projected the ratio at 82.4% for 2024-25.
- Public Debt Management Cell: It was set in 2015 as an interim arrangement before setting up an independent and statutory debt management agency namely the Public Debt Management Agency (PDMA).

Concerns of rising debt

- Impact on climate action: Developing countries need to increase climate investments from their current level of 2.1% of GDP to 6.9% by 2030 to meet the Paris Agreement targets. However, they are currently spending more on interest payments than on climate investments.
- Increase the cost of resolving debt crises: The increasing complexity of the creditor base makes debt restructuring more difficult as it requires negotiating with a broader range of creditors with diverging interests and legal frameworks.
- Inequalities in the international financial architecture: Borrowing from private sources on commercial terms is more expensive than concessional financing from multilateral and bilateral sources.

- Countries with high debt reduce expenditure in public services such as healthcare, education, and social welfare. This can exacerbate poverty and inequality.

Call to action to finance sustainable development

- The report proposed a plan to revamp the global financial system and boost the UN's Sustainable Development Goals (SDG) stimulus package to tackle the current debt crisis.
- These will entail efforts to:
- Make the system more inclusive: Improve the effective participation of developing countries in the governance of global financial systems.
- Tackle the rising cost of debt and risk of debt distress through an effective debt workout mechanism.
- Expand contingency finance to provide greater liquidity in times of crisis, so that countries are not forced into debt as a last resort.
- Massively scale up affordable and long-term financing by mobilizing multilateral development banks and private resources.

What is Public debt?

– Public debt is the total amount, including total liabilities, borrowed by the government to meet its development budget.

– The term is also used to refer to overall liabilities of central and state governments, but the Union government clearly distinguishes its debt liabilities from the states'.

– In India, the central government broadly classifies its liabilities into two categories — debt contracted against the Consolidated Fund of India, and public account.

– The sources of public debt are dated government securities (G-Secs), treasury bills, external assistance, and short-term borrowings.

World's Largest Grain Storage Plan

Syllabus :GS 3/Economy

In News

- The Ministry of Cooperation approved the "World's Largest Grain Storage Plan in 2023 to address the shortage of food grain storage capacity in India,
- This ambitious plan is being rolled out as a Pilot Project across different states and union territories (UTs) of the country.

Features

- Infrastructure facilities: It envisages creation of various agricultural infrastructure at Primary Agricultural Credit Societies (PACS) level, including warehouses, custom hiring center, processing units, Fair Price Shops, etc
- Convergence of Existing Schemes: The plan leverages a whole-of-Government approach by integrating existing schemes.these are
- Agriculture Infrastructure Fund (AIF)
- Agricultural Marketing Infrastructure Scheme (AMI)
- Sub Mission on Agricultural Mechanization (SMAM)
- Pradhan Mantri Formalization of Micro Food Processing Enterprises Scheme (PMFME)
- Financial Support and Subsidies: PACS can avail subsidies and interest subvention benefits for constructing godowns and other agri infrastructure.
- NABARD refinances PACS at highly subsidized rates (around 1%) after incorporating the benefits of the 3% interest subvention under the AIF scheme for projects up to Rs. 2 Crore.

Implementation:

- The Pilot project has been implemented by National Cooperative Development Corporation (NCDC) with the support of NABARD, Food Corporation of India (FCI), Central Warehousing Corporation (CWC), NABARD Consultancy Services (NABCONS) in coordination with States/ UTs concerned.

- Further, the pilot is being extended in 500 additional PACS with the support of State Governments, NCCF, National Buildings Construction Corporation (NBCC), etc.
- The Ministry of Cooperation has constituted an IMC to ensure effective implementation. The IMC can modify guidelines and methodologies as needed.

Benefits

- Food Security: By increasing the storage capacity for grains, the plan ensures a more stable supply of food, reducing the risk of shortages and contributing to national food security.
- Reduction in Wastage: Proper storage facilities help minimize the wastage of food grains due to spoilage, pests, and other factors, preserving valuable resources.
- Fair Pricing for Farmers: It will also prevent distress sale of crops by farmers and enable them to realise better prices for their crops.
- Financial Inclusion: Farmers can get finance against their stored crops for the next crop cycle, maintaining cash flow and investing in the next planting season.
- Empowerment of PACS: The plan enables PACS to provide storage facilities, Fair Price Shops, and Custom Hiring Centers.
- It strengthens the rural economy and benefits millions of farmers associated with cooperatives
- Global Recognition: India's efforts toward efficient grain storage will earn international acclaim.

Challenges

- Infrastructure Development: Building decentralized storage infrastructure at the local level requires significant investment and coordination.
- Constructing godowns, custom hiring centers, and processing units across various regions poses logistical challenges.
- Implementation Complexity: Converging ongoing schemes from three ministries involves intricate planning and execution
- Regional Variability: India's diverse geography and varying agricultural practices mean that storage requirements differ across states and union territories.
- Adapting the plan to meet regional needs while maintaining uniformity is a challenge.
- Financial Sustainability: the plan aims to strengthen Primary Agricultural Credit Societies (PACS), ensuring their long-term financial viability remains a challenge.

Conclusion

- The World's Largest Grain Storage Plan is a transformative step toward ensuring food security, reducing wastage, and strengthening cooperative societies.
- It holds immense potential to revolutionize food grain storage in India, benefiting millions of citizens and strengthening cooperative societies.

Central Excise Bill, 2024

Syllabus: GS3/Economy

Context

- The Central Board of Indirect Taxes & Customs (CBIC), has invited suggestions on the draft 'Central Excise Bill, 2024' from stakeholders.

About

- The Bill aims to enact a comprehensive modern central excise law with an emphasis on promoting ease of doing business and repealing old and redundant provisions.
- Once enacted, the Bill shall replace the Central Excise Act, 1944.
- The Bill comprises twelve chapters, 114 sections and two schedules.

Indian Toy Industry Push Into The UAE Market

Syllabus: GS3/Economy

Context

- The Toy Association of India (TAI) has brought a delegation to the UAE, consisting of members including manufacturers, importers, exporters, retailers, and toy testing lab designers.

Indian Toy Industry

- According to the Ministry of State for Commerce and Industry, India's exports of toys have surged by 60%, climbing from $203.46 Mn in 2018-19 to $325.72 Mn in the fiscal year 2022-23.
- The import of toys has witnessed a decline of 57%, dropping from $371.69 Mn in 2018-19 to $158.70 Mn in 2022-23.
- The Indian toy industry is among the fastest-growing globally, projected to reach $3 Bn by 2028, growing at a CAGR of 12% between 2022-28.
- The toy manufacturers in India are mostly located in Maharashtra, Karnataka, Tamil Nadu, and clusters across central Indian states.

Potentials for toy industry

- Availability of Raw Material: India is the world's 2nd largest producer of polyester and related fibers, accounting for 8% global share for plush toys; availability of plastics, paper boards, and textiles at competitive prices
- Competitive Labor Costs: India stands out as an advantageous destination due to its comparatively lower labor costs amongst other competing geographies.
- The import duty on toys was increased from 60% to 70% in Budget 2023.
- 100% FDI is allowed under the Automatic Route.

What are the associated challenges?

- Limited Brand Awareness: Indian toy brands have low visibility both domestically and internationally. Limited marketing and brand-building efforts hinder their ability to compete with well-known global brands.
- Fragmented Industry Structure: The industry is highly fragmented with a large number of small and medium-sized enterprises (SMEs), which limit their ability to achieve economies of scale and invest in research and development (R&D).
- Global Competitors: Asia's successful industrializing nations promote toy exports for job creation, starting with Japan about a century ago, China since the 1980s, and currently Vietnam following in their footsteps.
- Regulation and Adhering to Standards: Many of them have struggled to keep up with the regulatory changes and adhere to BIS standards.
- High Cost: Small manufacturers are unable to upgrade to machinery production as taxes levy on the equipment is high.

Government initiatives

- Vocal for Local: The Government of India provides comprehensive support through the National Action Plan for Toys (NAPT) by bringing together 20+ Ministries/ Departments.
- The import duty on toys was increased from 60% to 70% in Budget 2023.
- Large Cluster Ecosystem: The Government of India has established 60+ toy clusters to encourage domestic and global toy manufacturers to set up operations in India.
- There is a 400 acre cluster set up by Aequs in Koppal, Karnataka and a 100 acre facility being developed in Uttar Pradesh.
- Quality Control Order (QCO) on Toys: It was issued in 2020 under the BIS act to ensure toys manufactured or imported into the country were in-line with global quality standards.
- Customized State Incentives: Multiple states have announced incentives for toy manufacturers subsiding nearly 30% of the cost of manufacturing.

Way Ahead

- India has recently concluded Free Trade Agreements with geographies such as UAE and Middle East, providing zero-duty market access opportunities for India-made toys.
- Also there is a need for Strengthen industry associations to provide a unified voice for the sector and to facilitate collaboration among stakeholders.

Clearing Corporations

Syllabus: GS3/Economy

Context

- The Securities and Exchange Board of India (SEBI) has established a committee, led by former RBI Deputy Governor Usha Thorat, to re-evaluate the ownership and financial framework of clearing corporations (CCs).

Need

- This initiative aims to reinforce the resilience, independence, and neutrality of CCs, which are critical risk management institutions in the securities market.
- Current regulations mandate dispersed ownership and a specific governance structure for CCs, but the existing system is dominated by parent exchanges, raising concerns about their independence and capital infusion capabilities.
- SEBI's committee will assess the feasibility of broadening eligible investors in CCs and suggest diverse ownership models, aligning with international practices where major CCs have diversified shareholding.

What are Clearing Corporations (CCs)?

- Clearing Corporations (CCs) play a vital role in the smooth functioning of stock exchanges by handling the clearing and settlement of trades in securities and other financial instruments. They ensure that transactions are completed efficiently and securely, minimizing risks for market participants.
- The Securities Contracts (Regulation) (Stock Exchanges and Clearing Corporations) Regulations, 2018, govern the ownership and governance framework of CCs in India. These regulations aim to ensure the independence and neutrality of CCs, which is essential for their role as risk managers and regulators.

RBI has kept the Repo Rate Unchanged

Syllabus: GS3/Economy

Context

- The monetary policy committee (MPC) of the RBI has decided to keep the policy repo rate unchanged at 6.5 per cent.

About

- The central bank revised the upward FY25 GDP growth forecast to 7.2% from 7.0% estimated earlier.
- It retained FY25 CPI inflation forecasted at 4.5%.

About RBI Monetary Policy Committee

- The Monetary Policy Committee or the MPC is a 6 member committee that is led by the RBI governor.
- The first such MPC was constituted in 2016.
- The MPC determines the policy repo rate required to achieve the inflation target.
- The MPC is required to meet at least four times in a year. The quorum for the meeting of the MPC is four members.
- Each member of the MPC has one vote, and in the event of an equality of votes, the Governor has a second or casting vote.
- Each Member of the Monetary Policy Committee writes a statement specifying the reasons for voting in favour of, or against the proposed resolution.

Instruments of Monetary Policy

- Repo Rate: The interest rate at which the Reserve Bank provides liquidity under the liquidity adjustment facility (LAF) to all LAF participants against the collateral of government and other approved securities.
- Standing Deposit Facility (SDF) Rate: The rate at which the Reserve Bank accepts uncollateralised deposits, on an overnight basis, from all LAF participants. The SDF rate is placed at 25 basis points below the policy repo rate.
- Marginal Standing Facility (MSF) Rate: The penal rate at which banks can borrow, on an overnight basis, from the Reserve Bank by dipping into their Statutory Liquidity Ratio (SLR) portfolio up to a predefined limit (2 per cent).

Household Consumption Expenditure Survey (HCES) 2022-23

Syllabus :GS 3/Economy

In News

- Household Consumption Expenditure Survey (HCES) 2022-23 released by the Ministry of Statistics and Programme Implementation (MoSPI).

Key Findings

- Households across the country's rural and urban areas spent the highest share of consumption expenditure on 'beverages, refreshments and processed food' among food items in 2022-23.
- In rural India, food accounted for about 46 per cent of the households' consumption spending. In rural areas among all major states, the households of Haryana spent the maximum on 'milk and milk products' at 41.7 percent as a percentage of total expenditure on food, while Kerala spent the most on 'egg, fish & meat' at 23.5 per cent.
- In urban India, the share of food in average monthly per capita consumption expenditure (MPCE) in 2022-23 was about 39 per cent. The households in Rajasthan recorded the highest expenditure share on 'milk and milk products' at 33.2 per cent, only to be followed by Haryana (33.1 per cent)
- Over the years, the consumption expenditure on non-food items has increased to over 50 per cent
- Among non-food items, households spent the most on conveyance in both rural and urban areas of almost all the major states.
- This was followed by durable goods and miscellaneous goods, entertainment. Medical expenses and spending on fuel & light also constituted a significant share of the expenditure by households on non-food items.

CCI Proposed Regulations for Big Tech Entities

Syllabus: GS3/Economy

Context

- The Competition Commission of India (CCI), has proposed new regulations to monitor the settlements, and commitments of industry giants.

About

- In 2023, the Competition (Amendment) Act, 2023 was passed by the Government, incorporating certain new provisions — such as settlement and commitment, and leniency, among others.
- This created a need for amendment/repeal/overhauling of the various regulations framed by the CCI as well as for introduction of certain new ones.
- The CCI has invited stakeholders to submit their comments on the draft amendments within 30 days beginning June 6, 2024.

Proposed Regulations

- The primary objective of this amendment is to simplify and expedite procedural requirements, thereby facilitating a more efficient process.
- Additionally, it seeks to guarantee that every party involved has a fair and equal chance to participate and have their interests adequately represented and considered.

- CCI plans to closely monitor implementation of settlement and commitment offered by companies such as Big Tech entities in antitrust cases by engaging monitoring agencies to oversee such implementation.
- Monitoring agencies may include an accounting firm, management consultancy, any other professional organisation or chartered accountants, and company secretaries or cost accountants.
- They would be required to submit reports to the CCI from time to time.
- While the procedural changes are quite ordinary, the proposed amendment enhances the authority of the CCI.

Competition (Amendment) Act, 2023

- The act seeks to amend the Competition Act, 2002 which regulates competition in the Indian market and prohibits anti-competitive practices such as cartels, mergers and acquisitions that may have an adverse effect on competition.
- The CCI is responsible for implementing and enforcing the Act.

Amendments

- Penalties : It seeks to define 'turnover' for the purpose of penalty as global turnover derived from all the products and services by a person or an enterprise.
- The idea is to levy a penalty as a percentage of global turnover of the offending company, moving away from the current practice of levying a part of the local or relevant market turnover as penalty.
- Decriminalisation : The act decriminalises certain offences by changing the nature of punishment from imposition of fine to civil penalties.
- These offences include failure to comply with orders of the CCI and directions of the Director General related to anti-competitive agreements and abuse of dominant position.
- Expands CCI's Scope: The new provisions expand the scope of CCI's merger regulation by bringing deals worth more than 2,000 crore requiring regulator clearance.
- Settlement Mechanism: The act introduces a scheme for commitment and settlement which is meant to reduce litigation by way of negotiated settlements.
- This scheme is available to cases of anti-competitive agreements and abuse of dominance, but not to cartels.

Competition Commission of India

– It is a statutory body of the Government of India responsible for enforcing the Competition Act, 2002, it was duly constituted in 2009.

a. The Act prohibits anti-competitive agreements, abuse of dominant position by enterprises and regulates combinations, which causes an appreciable adverse effect on competition within India.

b. The Commission consists of one Chairperson and six Members who shall be appointed by the Central Government.

– The commission is a quasi-judicial body which gives opinions to statutory authorities and also deals with Antitrust cases.

Provisions of The Telecommunications Act 2023 Came into Force

Syllabus: GS3/Economy

Context

- The Telecommunications Act 2023, will be implemented partially from June 2024.

About

- The Telecommunications Act, 2023 aims to amend and consolidate the law relating to development, expansion and operation of telecommunication services and telecommunication networks; assignment of spectrum.
- It also seeks to repeal existing legislative framework like Indian Telegraph Act, 1885 and Indian Wireless Telegraph Act, 1933 owing to huge technical advancements in the telecom sector and technologies.

The Salient Features:

- Authorisation will be required from the central government to:
- establish and operate telecommunications networks,
- provide telecommunications services, or
- possess radio equipment.
- Assignment of spectrum: Spectrum will be assigned by auction, except for specified uses, where it will be allocated on an administrative basis.
- Powers of interception and search: Messages between two or more persons may be intercepted, monitored, or blocked on certain grounds.
- Such actions must be necessary or expedient in the interest of public safety or public emergency.
- Right of way: Facility providers may seek a right of way over public or private property to establish telecom infrastructure.
- Right of way must be provided on a non-discriminatory and nonexclusive basis to the extent possible.
- Appointments to TRAI: The Act amends the TRAI Act to also allow individuals with
- at least 30 years of professional experience to serve as the chairperson, and
- at least 25 years of professional experience to serve as members.
- Digital Bharat Nidhi: The Universal Service Obligation Fund has been established under the 1885 Act to provide for telecom services in underserved areas.
- Protection of users: The Act provides measures for protection of users from unsolicited commercial communication and create a grievance redressal mechanism.
- Digital by design: The Act provides that the implementation shall be digital by design bringing online dispute resolution and other framework.
- Offences and penalties: Providing telecom services without authorisation are punishable with imprisonment up to three years, a fine up to two crore rupees, or both.
- Breaching terms and conditions of authorisation is punishable with a civil penalty up to five crore rupees.

Concerns

- The ability to decrypt encrypted messages, the lack of clear guidelines on data retention, and the potential for misuse of biometric identification pose threats to civil liberties.
- It gives the government unfettered power that can infringe on citizen privacy with little or no accountability for governing officers.
- The Act does not specify procedural safeguards with respect to powers to search premises and vehicles.
- The Act vests several regulatory functions with the central government.
- This is distinct from sectors such as power and finance, where these functions have been delegated to the regulators.

Way Ahead

- There is a need for the legal and regulatory framework that focuses on a safe and secure telecommunication network that provides for digitally inclusive growth.
- It is important that users' sensitive personal information is not misused by any entity.
- It is important that any new player in the services market has non-discriminatory and non-exclusive access to infrastructure on a commercial basis for it to compete against integrated entities.
- A unified vision of the government of India should bring synergies in licensing, standards, skilling and governance across different departments.

Goods and Services Tax (GST) Council

Syllabus: GS3/ Economy

In News

- The 53rd meeting of the Goods and Services Tax (GST) Council recently concluded.

About Goods and Services Tax (GST) Council

- The GST Council, established in 2016 through the 101st Constitutional Amendment Act, is a unique

constitutional body that plays a pivotal role in shaping the GST framework and ensuring its smooth implementation.

- The GST Council is enshrined in Article 279A of the Constitution, solidifying its authority and importance.
- It is chaired by the Union Finance Minister and includes the Union Minister of State (Revenue), along with the Finance or Taxation Minister or any other nominated minister from each state government.
- Decisions are made through voting, with the Centre holding one-third of the voting power and states holding two-thirds. This ensures a cooperative federalism approach.
- The Council's primary mandate is to make recommendations to the Union and state governments on various aspects of GST, including tax rates, exemptions, thresholds, and procedures.

RBI Revised Priority Sector Lending Guidelines

Syllabus :GS 3/Economy

In News

- RBI has revised its priority sector lending guidelines to encourage banks to provide small loans in economically disadvantaged districts with low average loan sizes.

About Priority Sector lending

- Priority sector lending (PSL) in India refers to the mandatory lending targets set by the Reserve Bank of India (RBI) for banks and financial institutions to ensure that certain sectors of the economy receive adequate credit and financial support.
- The objective of priority sector lending is to promote inclusive growth, reduce regional imbalances, and support marginalised sections of society.
- Specified sectors Agriculture, MSMEs, social infrastructure, renewable energy, and others as priority sectors based on their social and economic significance.

Latest Guidelines

- The central bank has assigned a higher weight of 125% to the incremental priority sector credit in the districts with per capita priority sector credit less than Rs 9000, with effect from FY25.
- This effectively means that if a bank gives Rs 100 loan in low credit flow district, it will be considered as Rs 125 priority sector loan.
- Earlier from FY22 onwards till date, RBI followed a rule of higher weight of 125% in districts where per capita priority sector credit flow was Rs 6000.
- There is also a dis-incentive framework for districts with comparatively higher flow of priority sector credit in which a lower 90% weight is assigned for districts where the per capita priority sector credit flow is greater than Rs 42,000.
- This threshold was revised from Rs 25000 earlier.
- The weight is maintained at 100% for all other districts not mentioned by the central bank.

Front Running

Syllabus: GS3/ Economy

In News

- A recent allegation against a mutual fund indulging in front running, indicating that this illegal practice remains a concern in the financial markets.

About front running

- It is the illegal practice of using non-public information to trade in securities (buy or sell) or derivatives (options or futures) before a substantial order is placed. This gives the front-runner an unfair advantage as they can profit from the expected price movement caused by the large order.
- In 2022, the Securities and Exchange Board of India (SEBI) amended the Securities and Exchange Board of India (Mutual Funds) Regulations, 1996 to include provisions specifically aimed at curbing front running.

Why is Front Running Illegal?

- It undermines investor confidence in the fairness and integrity of financial markets.
- It creates an uneven playing field, favoring those with access to privileged information over regular investors.
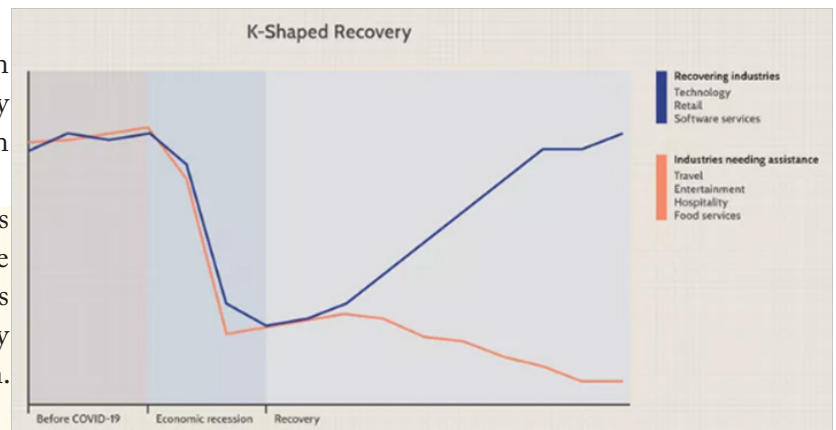
K-shaped recovery

Syllabus: GS3/Economy

Context

- According to a report by Hong Kong and Shanghai Banking Corporation (HSBC), India's inflation trajectory is following a K-shape recovery, hurting the consumers more living in rural areas.

About

- 'K-shaped recovery' refers to a situation where some sectors of the economy revive after a slowdown or recession while others don't.
- A K-shaped recovery leads to changes in the structure of the economy or the broader society as economic outcomes and relations are fundamentally changed before and after the recession.

Reasons

- A K-shaped recovery is possible due to the creative destruction of old industries due to the development of new industries and technologies during the recession.
- Government strategies like monetary and fiscal policies used to combat the recession can lead to a K-shaped recovery.

GI Tag for Dodol

Syllabus: GS3/ Economy

In Context

- Dodol, a rich, caramel-like dessert from Goa, is being considered for a Geographical Indication (GI) tag by the state government to standardize its recipe and preserve its cultural identity.

About GI Tag

- A Geographical Indication (GI) is a label used on products that come from a specific place, highlighting qualities or reputation linked to that location. Internationally, GI is recognized as part of Intellectual Property Rights (IPRs) under agreements like the WTO's TRIPS Agreement, Paris Convention, Madrid Agreement, and Lisbon Agreement.
- In India, GI registration is managed by the Geographical Indications of Goods (Registration and Protection) Act of 1999.
- It is overseen by the Registrar of Geographical Indications (RGI) and applies to agricultural, natural, or manufactured goods. This registration provides legal protection for 10 years, which can be renewed.
- The Department for Promotion of Industry and Internal Trade, part of the Ministry of Commerce and Industry, handles GI registration. This ensures protection against unauthorized use and helps promote exports.

Rise of Coffee Exports and European Union Deforestation Regulation (EUDR)

Syllabus: GS3/Economy

Context

- Indian coffee exporters are witnessing a surge in demand from European buyers as they build up inventory ahead of the deadline for compliance with the proposed European Union Deforestation Regulation (EUDR) norms.

European Union Deforestation Regulation (EUDR)

– It aims to minimise the importation of products linked to deforestation and requires strict due diligence and traceability measures for commodities such as coffee.

– It applies to a wide range of products, including cattle, cocoa, coffee, oil palm, rubber, soya, and wood etc.

About

- India's coffee exports for the January 1-June 21 period in 2024 have risen by 16% compared to the same period last year, reaching over 2.37 lakh tonnes.
- India, the seventh-largest coffee producer globally, ranks fifth in coffee exports after Brazil, Vietnam, Colombia, and Indonesia.
- Italy, Germany, and Belgium are major buyers of Indian coffee, with more than two-thirds of India-grown coffees destined for Europe.
- Indian coffee exporters are adapting to meet the demand and maintain their position in the international market, as Europe braces for stricter norms.
- The EUDR's impact on the coffee industry underscores the growing importance of sustainable practices and environmental responsibility in global trade.

About the Coffee Production in India

- Production: India is among the top 10 coffee-producing countries, with about 3% of the global output in 2020.
- Types:Arabica and Robusta.
- Arabica has higher market value than Robusta coffee due to its mild aromatic flavour.
- Robusta is the majorly manufactured coffee with a share of 72% of the total production.

Agro-Climatic Conditions for Coffee Production in India

Factors	Arabica	Robusta
Soils	Deep, fertile, rich in organic matter, well drained and slightly acidic (Ph 6.0 – 6.5)	Same as Arabica
Slopes	Gentle to moderate slopes	Gentle slopes to fairly level fields
Elevation	1000 – 1500 m	500 – 1000 m
Temperature	15°C – 25°C ; cool, equable	20°C – 30°C; hot, humid
Relative Humidity	70-80%	80-90%
Annual Rainfall	1600-2500 mm	1000-2000 mm

- Major Producers: South Indian states like Karnataka, Kerala, and Tamil Nadu contribute 80% of the country's total coffee production.
- Orissa and the northeastern areas also have a smaller proportion of production.

Coffee Board of India

– It was established through Coffee Act VII of 1942.

– Administrative Control: The Ministry of Commerce and Industry.

– Headquarter: Bangalore, Karnataka

– The Board has a Market Intelligence Unit (MIU) functioning from its head office at Bangalore.

A. It undertakes various activities related to market information & intelligence, market research studies, crop forecasting and coffee economics aspects.

Role of the Board

– enhancement of production, productivity & quality;

– export promotion for achieving higher value returns for Indian Coffee and

– supporting the development of Domestic market.

Need for amending the MSME Development Act, 2006

Syllabus: GS3/ Economy

Context

- The Union Ministry of Micro, Small, and Medium Enterprises (MSME) is amending the MSME Development Act, 2006 to improve mechanisms for managing disputes related to delayed payments and to better address the evolving needs of the MSME sector.

About

- The MSME ministry is in the process of transforming the Samadhaan portal, which currently only tracks disputes arising from delayed payments to micro and small enterprises (MSEs), into a comprehensive online resolution platform.
- The ministry also announced the Trade Enablement & Marketing (TEAM) initiative, which aims to onboard 5 lakh MSEs onto the Open Network for Digital Commerce (ONDC).
- The ministry also announced the Yashasvini campaign to spread awareness for formalizing women-owned, informal micro enterprises, with a focus on tier-2 and tier-3 cities.

What are MSMEs?

- MSMEs or Micro, Small, and Medium Enterprises are businesses that are defined by their investment and turnover levels.
- They are considered an important sector of the economy as they create jobs, generate income, and promote entrepreneurship.

Existing & Revised definition of MSMEs

Existing MSME Classification

Criteria : Investment in Plant & Machinery or Equipment

Classification	Micro	Small	Medium
Mfg. Enterprises	Investment<Rs. 25 lac	Investment<Rs. 5 cr.	Investment <Rs. 10 cr.
Services Enterprise	Investment<Rs. 10 lac	Investment< Rs. 2 cr.	Investment<Rs. 5 cr.

Revised MSME Classification

Composite Criteria : Investment And Annual Turnover

Classification	Micro	Small	Medium
Manufacturing & Services	Investment< Rs. 1 cr. and Turnover < Rs.5 cr.	Investment< Rs. 10 cr. and Turnover < Rs.50 cr.	Investment< Rs. 20 cr. and Turnover < Rs.100 cr.

Contribution of MSMEs

- Contribution in Economy: MSMEs are often called the powerhouse of the Indian economy; they account for more than 11 crore jobs and contribute around 27% of India's GDP.
- Employment Generation: The sector consists of around 6.4 crore MSMEs , with 1.5 crore of them registered on the Udyam portal and employs around 23% of the Indian labor force, making it the second-largest employer in India after agriculture.
- Output and Exports: They account for 38.4% of the total manufacturing output and contribute 45.03% of the country's total exports.

Challenges faced by MSMEs in India

- Access to Finance: MSMEs struggle to secure capital due to a lack of collateral, limited credit history, or inadequate access to formal financial institutions.
- Bureaucratic Red Tape: Navigating complex regulations and bureaucratic procedures can be time-consuming and costly for MSMEs, often diverting resources away from core business activities.
- Increased Competition: MSMEs face stiff competition from larger, more established companies that have greater resources and market influence.
- Lack of Technological knowledge: Many MSMEs lack the technical expertise needed to modernize their operations, adopt new technologies, and stay competitive in the market.
- Marketing and Networking Opportunities: Limited resources and networks prevent MSMEs from effectively marketing their products and services, making it difficult to reach new customers and grow their businesses.
- Lack of Formalization: Many MSMEs operate informally or are unregistered, which limit their access to government support, financial services, and other benefits that are available to formally registered businesses.

Government initiatives to promote the MSME sector

- MSME Champions scheme: The objective of the scheme is to modernize MSMEs' manufacturing processes, reduce wastages, encourage innovativeness, sharpen business competitiveness and facilitate their National and Global reach and excellence.
- Udyam Registration: It is an online registration process to simplify the registration of MSMEs. The primary objective is to provide MSMEs with a streamlined process to avail themselves of various benefits and incentives offered by the government.
- Section 15 of the Micro, Small, and Medium Enterprises Development (MSMED) Act, 2006, and newly enacted Section 43B(h) of the Income-tax Act says that businesses must pay these MSME Registered Enterprises within 15 days, or up to 45 days if they have an agreement.
- Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE): This scheme provides collateral-free credit to micro and small enterprises through a credit guarantee mechanism.

Way Ahead

- The government should focus on six pillars such as, formalization and access to credit, increased access to market and e-commerce adoption, increased productivity through modern technology etc.
- Also there is a need for enhancing skill levels and digitalisation in the service sector, support to khadi, rural, and coir industries, and empowerment of women and artisans through enterprise creation.

Amendment to the Prohibition of Insider Trading (PIT) Regulations

Syllabus: GS3/Economy

Context

- The Securities and Exchange Board of India (Sebi) has amended Prohibition of Insider Trading (PIT) regulations to provide flexibility in the "Trading Plan" that allows insiders to deal in their shares.

Background

- According to regulations, they have a narrow window to carry out trades to avoid insider trading.
- These insiders have to give a 'trading plan' specifying the share price, amount, and transaction date in advance.

What Is Insider Trading?'
– Insider trading' in financial markets refers to trading in securities by company insiders who have access to exclusive information about the issuer of a particular security before such information is released to the general public.
– The officials who usually have access to unpublished price-sensitive information (UPSI) are considered to be insiders.

What are the amendments?
- Sebi has reduced the minimum cool-off period between disclosure and implementation of the trading plan from six months to four months.
- It has also introduced a 20 per cent price range for buying or selling shares in the trading plan.
- There is flexibility to insiders to not execute the trades if the execution price is outside the limit set by them in the trading plan.

Viability Gap Funding (VGF) Scheme for Offshore Wind Energy Projects

Syllabus: GS3/Economy

Context
- The Union Cabinet approved the Viability Gap Funding (VGF) scheme for offshore wind energy projects.

Viability Gap Funding (VGF) Scheme
- The VGF scheme is a major step towards implementation of the National Offshore Wind Energy Policy notified in 2015 with an aim to exploit the vast offshore wind energy potential that exists within the exclusive economic zone of India.
- Nodal Agency: Ministry of New and Renewable Energy, as the nodal ministry, will coordinate with various Ministries/Departments to ensure successful implementation of the scheme.
- Implementation: It includes installation and commissioning of 1 GW of offshore wind energy projects (500 MW each off the coast of Gujarat and Tamil Nadu), and upgradation of two ports to meet logistics requirements for offshore wind energy projects.
- Significance: The VGF support from the Government will reduce the cost of power from offshore wind projects and make them viable for purchase by DISCOMs.
- The successful commissioning of 1 GW offshore wind projects will produce renewable electricity of about 3.72 billion units annually, which will result in annual reduction of 2.98 million ton of CO_2 equivalent emission for a period of 25 years.
- It will lead to creation of required ecosystems in the country to supplement its ocean based economic activities.

Offshore Wind Energy
- Offshore wind power or offshore wind energy is the energy taken from the force of the winds out at sea, transformed into electricity and supplied into the electricity network onshore.
- It is a source of renewable energy which offers several advantages over onshore wind and solar projects, such as higher adequacy & reliability, lower storage requirement and higher employment potential.

Advantages
- Higher Outcome: Wind speeds tend to be faster and more consistent offshore compared to onshore locations.
- This means offshore turbines can generate more electricity on average.
- Reduced Noise Impact: Offshore wind farms are located far from populated areas, reducing visual and noise impacts compared to onshore installations.
- More Space: Offshore locations offer more available space for larger and more numerous turbines, potentially generating more electricity per site.
- Less Obstruction: Turbines can be placed in deeper waters where they are less likely to obstruct shipping lanes or interfere with other land uses.

Disadvantages

- Higher Installation Costs: Installation and maintenance costs for offshore wind farms are higher than for onshore due to the complexities of marine construction and logistics.
- Environmental Impact: Construction and operation can affect marine ecosystems and wildlife, although modern projects incorporate environmental assessments and mitigation measures.

Conclusion

- Despite these challenges, the growth of offshore wind energy has been substantial in many parts of the world, driven by increasing energy demand, climate change concerns, and advancements in technology and policy supporting renewable energy development.
- Countries like the UK, Germany, and Denmark have been leaders in offshore wind deployment, with several ambitious projects planned or underway globally.

Krishi Sakhis

Syllabus: GS3/Economy

Context

- Prime Minister Narendra Modi distributed certificates to over 30,000 self-help groups trained as Krishi Sakhis to work as para extension workers.

About Krishi Sakhi

- Krishi Sakhi is one dimension under the 'Lakhpati Didi' program which aims to create 3 crore Lakhpati Didis.
- The Krishi Sakhi convergence program (KSCP) aims to transform rural India through the empowerment of rural Women as Krishi Sakhis, by imparting training and certification of Krishi Sakhis as Para-extension Workers.
- Right now the Krishi Sakhi training program has been rolled out in 12 states in Phases.
- In the first phase, women of Gujarat, Tamil Nadu, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Karnataka, Maharashtra, Rajasthan, Odisha, Jharkhand, Andhra Pradesh, and Meghalaya will be trained as Krishi Sakhis.
- On an average, a Krishi Sakhi can earn around Rs 60,000 to 80,000 in a year.

Para Extension Workers

- Krishi Sakhis are trained by professionals on various agriculture related extension services for 56 days on various activities.
- Krishi Sakhis are chosen as agriculture para-extension workers because they are trusted community resource persons and experienced farmers themselves.

Women in Agriculture in India

- Participation: In India, Agriculture employs about 80 percent of rural women.
- As per the Annual Periodic Labour Force Survey, 2021-2022, agriculture has the highest estimated female labour force participation of 62.9 per cent.
- Economic Survey 2017-18, says with growing rural-to-urban migration by men, there is 'feminisation' of the agriculture sector, with an increasing number of women in multiple roles as cultivators, entrepreneurs, and labourers.
- Activities: Rural women are also engaged in allied fields including livestock rearing, horticulture, post-harvesting operations, agro/social forestry, fishing, etc.
- Most labor-intensive manual operations in agriculture such as cattle management, fodder collection, milking, threshing, winnowing, etc., are performed by women.
- Significance: The community management role played by rural women helps ensure the dissemination of information and extension at the community level.
- Rural women are responsible for the integrated management and use of diverse natural resources to meet the daily household needs.

Conclusion

- With the participation of women in agriculture and allied activities becoming more significant, it becomes essential to keep women at the center of India's policy initiative.
- The challenge of ending poverty can only be achieved with the end of gender-based discrimination.
- The Indian government in its vision has realized the gap and is striving toward poverty alleviation through training programs, financial inclusion, strengthening of social services, and creating awareness of women's rights.

National Financial Reporting Authority (NFRA)

Syllabus: GS3/Economy

Context

- The National Financial Reporting Authority (NFRA) is set to conduct its first annual inspection of eight audit firms, including the Big Five.

National Financial Reporting Authority (NFRA)

- It is a body constituted in 2018 under the provisions of Section 132 of the Companies Act, 2013.
- The duties of the NFRA are to:
- Recommend accounting and auditing policies and standards to be adopted by companies for approval by the Central Government;
- Monitor and enforce compliance with accounting standards and auditing standards;
- Oversee the quality of service of the professions associated with ensuring compliance with such standards and suggest measures for improvement in the quality of service;
- Perform such other functions and duties as may be necessary or incidental to the aforesaid functions and duties.
- The Companies Act requires the NFRA to have a chairperson who will be appointed by the Central Government and a maximum of 15 members.

Angel Tax

Syllabus: GS3/Economy

Context

- Amid a sharp decline in funding for startups and consequent job losses, Indian Inc has sought the removal of Angel Tax.

About

- Background: Angel tax was introduced in 2012 to curb money laundering through high premiums on shares issued by closely-held companies, including startups.
- The concern was that startups were being used as vehicles for converting black money into white by inflating the value of shares.
- It is income tax at the rate of 30.6 percent, it is levied when an unlisted company issues shares to an investor at a price higher than its fair market value.
- Earlier, it was imposed only on investments made by a resident investor.
- However the Finance Act 2023 proposed to extend Angel Tax even to non-resident investors from April 1, 2024.
- Concerns: Startups and angel investors argued that the tax was unfair and detrimental to the growth of early-stage companies.
- They pointed out that startups often have high valuations due to their potential rather than current financial metrics, which tax authorities did not always consider.

General Anti-Avoidance Rule (GAAR)

Syllabus: GS3/Economy

Context

- Recently, the Telangana High Court has ruled against a taxpayer in the matter of the General Anti-avoidance Rule (GAAR).

About the General Anti-Avoidance Rule (GAAR)

- It is an anti-tax avoidance law in India, that was introduced to address tax avoidance and ensure that those in different tax brackets are taxed the correct amount.
- The GAAR regulations are based on the Income Tax Act of 1961, and it was first introduced in the Direct Taxes Code Bill 2010.
- It is a provision of last resort that is capable of being invoked by a tax authority to strike down unacceptable tax avoidance practices that would otherwise comply with the terms and statutory interpretation of the ordinary tax law.

Key Features

- GAAR investigates the imposition of taxes on those types of arrangements that are primarily aimed to avail a tax benefit or those that don't have any commercial substance.
- It can be invoked if some good business principles are not followed by tax avoidance objectives.

International Perspective

- Many countries, like Canada and South Africa, have codified the doctrine of 'substance over form' through a GAAR – type ruling.
- The introduction of GAAR continues to be topical in many other jurisdictions such as India and Poland.

CHAPTER 1- FORTS IN INDIAN HISTORY

FORTS:

- Forts are historically significant structures for defense that have evolved from natural defenses to elaborate constructions using local resources and technological advancements.
- They were strategically built based on the terrain, with hill forts on rocky terrains and massive walls in plains.
- Initially focused on defense, forts later incorporated residential and religious structures, expanding beyond military functions.

TYPES OF FORTS:

The forts in the Indian subcontinent are influenced by the landscape, culture, and aesthetics of the ruling classes.

- Arthasashtra, an ancient Indian political treatise, classifies forts based on their physical nature, which remains a foundational aspect in studying Indian forts.
- This classification system provides a fundamental understanding of the forts in the region, reflecting the diverse heritage and political landscape of India.

Forts may be classified as:

1. Dhanva Durg or Desert Fort: This type of fort is surrounded by a desert or an arid stretch of land which can inhibit the swift movement of enemies.

2. Mahi Durg or Mud Fort: This type of fort is protected by earthen walls and ramparts. Walls constructed of bricks and stones can also come under this category.

3. Jala Durg or Water Fort: This type of fort is surrounded by water bodies which could either be natural (sea or rivers) or artificial (moats, artificial lakes etc.)

4. Giri Durg or Hill Fort: This type of fort is situated on either the summit of a hill or a valley that is surrounded by hills.

5. Vriksha or Vana Durg, or Forest Fort: This type of fort has a thick forest cover as a preliminary line of defense.

6. Nara Durg or fort protected by soldiers: This type of fort primarily relies on man-power, i.e., a strong army to defend itself.

   - Many a time, the forts of India display a combination of these categories. For example, the Jaisalmer Fort is also a hill fort in addition to being a desert fort. The Kalinjar Fort is a Giri Durg as well as a Vana Durg. The Gagron Fort of Rajasthan combines the features of a water fort and a hill fort..

7. Palace Forts: Fort complexes, including palaces for royalty and nobility, can transition from military outposts to administrative and residential hubs. Some forts serve dual purposes as strategic military stations and residential centers.

8. City Forts: Forts can attract populations and lead to the development of cities nearby. Existing cities were sometimes enclosed within fortifications for protection, with complexes including schools, worship areas, residential quarters, palaces, and farms.

9. Trading Forts: Forts were built as hubs for commercial and financial activities, with some evolving from warehouses or trade links to fortified structures for protection. European forts in India exemplify this transformation.

Firoz Shah Tughlaq established the fortified capital of Delhi called Firuzabad in the mid 14th century. It is included in the Firoz Shah Kotla complex today. *Kotla* literally means a fort or a citadel.

The British fortified their factory at Madras which developed into the famous Fort St. George. It became their headquarters for the entire region of Southern India.

CHAPTER 2: IMPORTANCE OF FORTS

Forts in ancient India played a crucial role not only in warfare but also in shaping the social, economic, and cultural landscape:

MILITARY DEFENSE:

- Impregnable Outposts: For centuries, forts were the primary line of defense against invaders. Strategically located on hills or near water bodies, they boasted thick walls, clever designs (bastions, gateways), and innovative features (moats, machicolations) to repel attacks. Examples include Gwalior Fort (Madhya Pradesh) and Mehrangarh Fort (Rajasthan).

POLITICAL POWER:

- Symbols of Authority: Forts served as a tangible display of a ruler's power and prestige. Their grandeur,

showcased through intricate architecture and expensive materials, sent a strong message to both the populace and rivals. The Red Fort in Delhi is a prime example.

ECONOMIC HUBS:

- Thriving Centers: Beyond military purposes, forts often housed royal courts, administrative centers, and vast storehouses. Trade routes often converged near or passed through forts, facilitating commerce and generating revenue. Cities like Agra, initially built around Agra Fort, flourished due to their proximity.

SOCIAL AND CULTURAL CENTERS:

- Cradle of Culture: The secure environment within forts fostered the blossoming of art, music, and literature. Royal patronage within the fort walls nurtured diverse artistic expressions. Additionally, temples and other religious structures were often integrated into fort complexes, making them significant cultural and religious centers. The intricate murals of Chittorgarh Fort or the serene Eklingji Temple within Mehrangarh Fort exemplify this.

ARCHITECTURAL INNOVATION:

- Testing Grounds: Fort construction in India witnessed remarkable feats of engineering. Architectural styles evolved over centuries, incorporating influences of various dynasties. The use of sloping walls to deflect cannonballs during the Mughal era exemplifies such innovation. Forts also served as testing grounds for novel defensive techniques and technologies, shaping warfare in the subcontinent.

ENDURING LEGACY:

- Windows to the Past: Even today, forts stand as captivating testaments to India's vibrant past. They are not only tourist destinations but also a treasure trove of information for historians and archaeologists. Studying these forts allows us to piece together the political tapestry, cultural nuances, and architectural brilliance of bygone eras.

CHAPTER 3- HISTORY OF FORTS IN ANCIENT INDIA

Ancient period saw the rise and fall of numerous empires and dynasties across the subcontinent. Forts from this era exhibit great diversity and do not follow a linear pattern of development. They reflect a synthesis of indigenous architectural traditions as well as those introduced by conquerors and adventurers.

EXAMPLES OF ANCIENT INDIAN FORTS:

- Indus Valley Civilization (3300-1300 BCE): Kot Diji and Dholavira showcase early examples of fortified settlements.
- Iron Age (1200-300 BCE): Hill forts like Rajgir and Ahicchatra became prominent.
- Mauryan Empire (322-185 BCE): Pataliputra, the capital, was a fortified city.

INDUS VALLEY PERIOD

- Indus Valley settlements were characterized by a clear division into a Citadel area and a Lower Town area, as seen in Mohenjodaro.
- The citadel area in Mohenjodaro was additionally surrounded by a moat.
- Kot Diji (3300 BCE) was a fortified site with a massive wall made of limestone rubble and mud-brick, containing a citadel complex and a lower residential area.
- Kalibangan (2920-2550 BCE) was surrounded by massive mud-brick fortifications.

Dholavira, Gujarat

- In the rocky regions of Kutch and Saurashtra, stone was extensively used in building fortified walls.
- Dholavira was fortified with an imposing wall made of stone rubble set in mud mortar, which is distinctive and not seen at other Harappan sites.
- While some scholars suggest these were not primarily defensive constructions, but rather protective

embankments or social structures, the scale and nature of the fortifications indicate that they served a defensive purpose as well.

- The presence of such fortifications across the large area of the Indus Valley Civilization suggests that force and conflict were not completely absent during this period.

VEDIC PERIOD

- Evidence from the Vedic period comes primarily from literary sources rather than archaeological evidence.
- The Rig Veda mentions a Bharata king named Divodasa who defeated the Dasa ruler Shambara, who commanded many mountain fortresses.
- The Rig Veda also refers to tribes living in fortified settlements called Pura.
- The Aitereya Brahmana refers to three sacrificial Agnis (fires) as three forts that prevent the Asuras (demons) from disturbing the sacrifice.
- Indra is referred to in Vedic literature as Puramdara, or the "destroyer of forts".

SECOND URBANIZATION IN INDIA (6TH CENTURY B.C. TO 3RD CENTURY B.C.):

- This period saw the emergence of the powerful Mahajanapadas or sixteen major kingdoms across India.
- The growth of these kingdoms led to increased warfare and the consequent need to strengthen military defenses and fortifications.
- Rajgir, the ancient capital of Magadha, had two cities - Old Rajagriha and New Rajagriha, both surrounded by stone fortification walls. The outer walls of Old Rajagriha date back to the 6th century BCE during the reign of Bimbisara, while the walls around New Rajagriha were built under Ajatashatru in the 5th century BCE.
- The Buddhist text Maha-Parinibbana-sutta mentions a fort built near Patali on the orders of Ajatashatru, which later developed into the city of Pataliputra.
- Other major fortified capitals included Champa (capital of Anga), Kaushambi (capital of Vatsa), Ahichchhatra (capital of Panchala), and Ujjayini (capital of Avanti).
- These cities typically had imposing mud or stone fortification walls, often with moats as additional defensive features.
- When Alexander the Great reached the boundaries of Magadha in 326 BCE, the Anabasis of Alexander described the walled cities with citadels on commanding heights and towers along the walls.

MAURYAN PERIOD

- After the fall of the Nanda Dynasty, Chandragupta Maurya established the Mauryan empire with the help of his minister Kautilya.
- Kautilya's Arthashastra is a crucial source for understanding Mauryan military institutions and fortifications.
- The Arthashastra considers the fortified capital (durga) as one of the seven essential elements of the state.
- Kautilya provides detailed instructions on fort construction, recommending features like:
- Mud ramparts with brick or stone parapets
- Troops stationed along the fort walls
- Three moats filled with lotuses and crocodiles
- Adequate provisions to withstand sieges
- Secret escape routes
- Kautilya classifies forts into different categories based on their terrain and defensive features, such as desert forts, mud forts, water forts, hill forts, forest forts, and forts protected by loyal soldiers.
- After the last Mauryan king, Pushyamitra Shunga established the Shunga dynasty in 187 BCE. Fortifications from the Shunga period have been identified at Katragarh, with brick walls, a mud core, and a surrounding trench.

PENINSULAR INDIA (SANGAM PERIOD)

- The early Peninsular India was dotted with hundreds of forts, indicating the widespread use of fortifications.
- The concept of fully-built forts with mature architectural features like moats, turrets, and bastions had reached an advanced stage during the Sangam period.
- The forts were constructed using a variety of materials - mud, huge laterite blocks, or bricks. Brickbats and pebbles were used in later renovations to strengthen the ramparts.

- Larger forts were built around the capital cities of major kingdoms like Madurai, Kanchi, and Vanji, as well as important commercial centers.
- Smaller forts were also erected around royal palaces.
- One of the earliest South Indian forts with stone and brick construction was reported from Pudur village in Nellore, Andhra Pradesh. It had a rectangular plan and a massive 30-meter wide moat.
- The Sangam literature vividly describes the grandeur of the fort at Madurai, with its towering walls, wide gates, and a deep moat surrounded by dense forests.

GUPTA PERIOD

- The Gupta Empire encompassed a large part of the Indian subcontinent between the 3rd and 6th centuries CE.
- While the Gupta period is primarily known for its religious architecture, such as Buddhist and Jain cave temples and early Hindu temples, not much scholarly attention has been focused on the Gupta's military architecture and fortifications.
- The Allahabad Pillar inscription records that during his southern expedition in the 4th century CE, Gupta emperor Samudragupta defeated a king named Svamidatta and captured the hill-forts of Mahendragiri and Kottura in the Ganjam region.
- The hill-fort of Mahendragiri was originally built by the early Ganga kings.
- The Garhwa Fort complex houses some of the oldest remains of the Gupta period, including 5th-6th century architectural relics of temples and tanks. However, the present-day square enclosure and parapets around the site were added by Raja Baghel Raja Vikramaditya of Bara in the 18th century.
- The Basarh fort in present-day Bihar, also known as Raja Bisal-ka-garh, is believed to have been constructed during the Gupta period.

RAJPUTS

- The rugged topography of Rajasthan, defined by the Aravalli hills, led to the widespread construction of forts by the Rajput clans.
- Rajput forts have a long history, with layers of construction over the centuries. Legends attribute the origins of some major forts like Chittorgarh, Gwalior, and Amer to earlier rulers.
- The Rajput forts that stand today were mostly built during the early medieval period, but continued to evolve into more complex and refined forms in the later medieval era.

Rajput architecture in its mature phase: The Amer Fort, Jaipur

- Characteristic features of mature Rajput forts include:
- Massive fortified gates flanked by watchtowers
- Multiple gates, often built to commemorate victories
- Ramparts with watchtowers at regular intervals
- Unique systems of tunnels and stairs within the ramparts
- Customized designs to accommodate different weapons like bows/arrows and later, cannons
- Reinforced walls to withstand cannon fire
- Dedicated areas for worship within the fort
- The Rajput forts reflect the strong clan loyalties and military prowess of the Rajput rulers, as well as their ability to adapt their fortifications to changing military technologies over time.

CHAPTER 4- HISTORY OF FORTS IN MEDIEVAL INDIA

The history of forts in medieval India is marked by continuous conflict, leading to the capture, destruction, and occupation of various forts over the centuries.

- Architectural changes in these forts mirrored the evolving landscape of the country. The medieval era saw significant developments in fort construction, closely intertwined with the military and political history of the region from the 13th to the 18th centuries.
- The history of forts in India during the medieval era reflects a continuation of the past, with forts changing hands, being captured, recaptured, destroyed, and occupied over the centuries.
- The Delhi Sultanate was established in the 13th century, with its foundations laid by Muhammad Ghuri and Qutbuddin Aibek, and formally established by Iltutmish.
- During this period, the Rajputs held sway over large parts of Northern India and built numerous monuments, including prominent forts.
- The architectural style that developed during the Delhi Sultanate period was a synthesis of indigenous traditions and influences from Central Asia.
- The Sultanate architecture involved the use of the arch and dome technique, which was borrowed from the Arabs and not a Turkish invention.
- The early Sultans of Delhi also fought against the onslaught of the Chaghtai Mongols on the North-western frontier, leading to the repair of the Lahore fort.
- Under Alauddin Khilji, forts became of prime importance for the Turkish rulers, and he captured prominent Rajput forts like Chittor, Ranthambore, and Jaisalmer.
- The Tughlaq dynasty introduced new architectural trends, such as building structures on high platforms and the use of 'batter' or sloping walls.
- The Bahmani Sultanate introduced Iranian architectural techniques in peninsular India, including the karez water supply system in the Bidar fort.
- The Mughal era saw the development of a syncretic architectural style, with influences from Persian, Indian, and other regional traditions.
- The introduction of artillery in the 16th century led to changes in fort architecture, with lower and thicker walls, bastions, and taller gates to accommodate elephants.

EXAMPLES OF MEDIEVAL INDIAN FORTS:

- Mehrangarh Fort, Jodhpur: A formidable fort perched on a hill, Mehrangarh boasts impressive fortifications and intricate palaces within its walls.
- Chittorgarh Fort, Rajasthan: This UNESCO World Heritage Site is known for its tragic history of Jauhar (self-immolation) by Rajput women and its sprawling complex.
- Jaigarh Fort, Jaipur: This majestic fort houses a vast cannon foundry and offers stunning views of Jaipur city.
- Gwalior Fort, Madhya Pradesh: An ancient hill fort with multiple dynasties leaving their mark, Gwalior Fort is a blend of Hindu and Muslim architecture.
- Jaisalmer Fort, Rajasthan: Nicknamed the "Golden Fort" due to its yellow sandstone, Jaisalmer Fort is a sprawling desert fortress known for its intricate carvings.
- Red Fort, Delhi: Built by Mughal emperor Shah Jahan, the Red Fort served as the seat of Mughal power for nearly 200 years and showcases Mughal architectural grandeur.
- Golconda Fort, Hyderabad: This fort, once a prominent diamond trading center, features innovative acoustic engineering and intricate gateways.
- Trichy Rock Fort, Tamil Nadu: This ancient fort perched on a massive rock is a significant religious site with temples from various dynasties.

- Junagadh Fort, Gujarat: Located atop Mount Girnar, this fort complex offers stunning views and houses Jain temples and other religious structures.
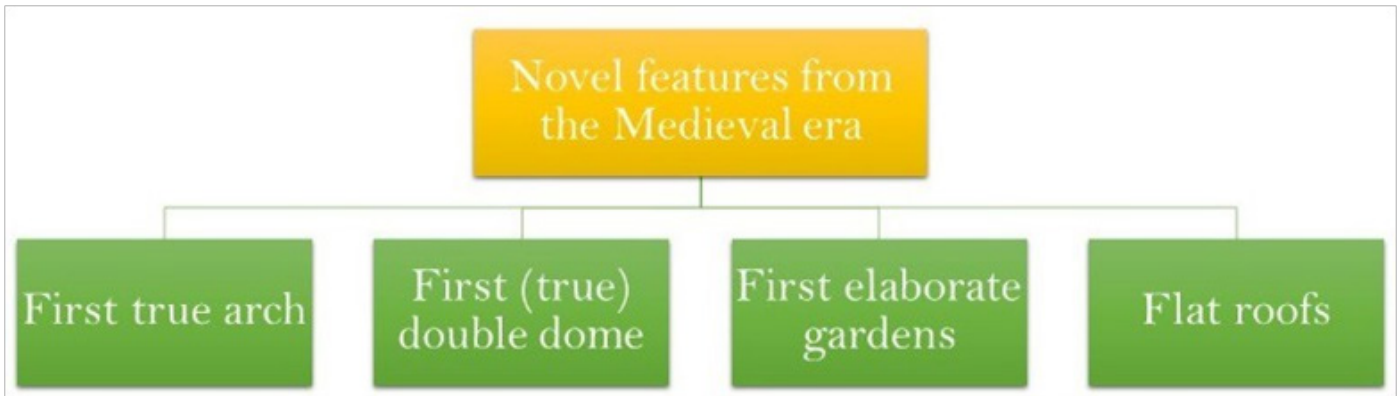
CHAPTER 5- HISTORY OF FORTS IN COLONIAL PERIOD

- The decline of the Roman Empire and the rise of Arab dominance over trade routes to India led the Europeans to seek a direct sea route to India. The Portuguese were the first to arrive in India in 1498 under Vasco da Gama, establishing trading factories in Calicut, Cannanore, and Cochin.
- To protect their trade interests, the Portuguese began fortifying their settlements, building the first fort - Fort Emmanuel in Kochi in 1503.
- The Portuguese presence was contested by the arrival of the Dutch, who founded their first factory in Masulipatnam in 1605.
- The Portuguese built Fort Aguada in Goa to defend against the Dutch, with features like a freshwater spring, bastions, moats, and a lighthouse.
- The Dutch eventually overpowered the Portuguese, capturing their trading centers and forts like the one in Kochi.
- The European powers used forts not only for trade protection, but also as sanctuaries against rebellions by indigenous rulers who resented their presence.
- Over time, the forts assumed a multi-functional role, serving as centers of commerce, military power, and colonial administration for the European powers in India.
- The struggle for monopoly and dominance over India's lucrative trade in spices, textiles, and other goods was a key driver behind the construction of these European fortified settlements.
- In 1639, the ruler of Chandragiri granted the English permission to fortify their factory at Madras, which developed into the famous Fort St. George.
- Fort St. George was the first English fortress in India and evolved into a city fortress, with the "white town" of the fort and the "black town" of the surrounding city.
- The architecture of Fort St. George is typical of 17th-18th century British Baroque style, which had originated in Italy and traveled to India through the Portuguese.
- The English further enlarged Fort St. George in response to the arrival of the French East India Company, who established factories at Surat (1667) and Masulipatnam.
- The French also established a township near Calcutta, further intensifying the competition between the European powers in India.
- The construction of these fortified settlements by the English and other Europeans was driven by the need to protect their lucrative trading interests and establish dominance in the subcontinent.
- In the early 18th century, the French established Fort St. Louis in Pondicherry, which was designed based on plans by the famous French military engineer Vauban.
- Fort St. Louis had a pentagonal shape with five bastions and gates, as well as underground chambers for storing ammunition and other military supplies.
- The evolution of fort designs reflected the increasing engineering expertise and military considerations of the European powers as they expanded their presence and influence in India.

MODERN INDIAN FORTS:

- Cellular Jail, Port Blair (Andaman and Nicobar Islands): Built by the British in the late 19th century, this cellular jail was known for its solitary confinement cells and is now a national memorial.

- Fort William, Kolkata: Although founded in the 17th century, Fort William underwent significant expansion in the 18th and 19th centuries. It's now an Indian Army Eastern Command headquarters.

Fort Aguada, Source: Wikimedia Commons

CHAPTER 6- INDIA'S UNESCO WORLD HERITAGE FORTS

- **Red Fort, Delhi:**

  o It was constructed in 1638 by Mughal Emperor Shah Jahan.

  o It epitomizes India's Mughal heritage.

  o Built from red sandstone, it served as the Mughal emperors' main residence for nearly two centuries.

  o The fort is renowned for its imposing walls, the Diwan-i-Aam (Hall of Public Audience), Diwan-i-Khas (Hall of Private Audience), and stunning architecture that merges Persian, Timurid, and Indian influences.

- **Agra Fort, Uttar Pradesh:**

  o This grand red sandstone fort was the main residence of the Mughal dynasty until the capital moved to Delhi.

  o It houses numerous exquisite structures, including the Jahangir Mahal, Khas Mahal, Diwan-i- Khas, Diwan-i-Aam, and the iconic Musamman Burj, where Shah Jahan was imprisoned by his son Aurangzeb.

- **Amber Fort, Rajasthan:**

  o Also known as Amer Fort, this fort is perched on a hill overlooking Maota Lake.

  o Constructed in the late 16th century by Raja Man Singh I, Amber Fort is celebrated for its artistic features, including large ramparts, a series of gates, cobbled paths, and the famous Sheesh Mahal (Mirror Palace).

- **Chittorgarh Fort, Rajasthan:**

  o Spanning over 700 acres, Chittorgarh Fort is India's largest fort and symbolizes Rajput valour and sacrifice. Its history dates back to the 7th century, and it includes notable structures like the Vijay Stambh (Victory Tower), Kirti Stambh (Tower of Fame), Rana Kumbha Palace, and the Padmini Palace.

  o The fort has witnessed numerous battles, testifying to the bravery of its defenders.

- **Jaisalmer Fort, Rajasthan:**

  o Built in 1156 by Rawal Jaisal, Jaisalmer Fort is one of the largest fully preserved fortified cities globally and remains inhabited, housing a quarter of the city's population.

  o It features numerous palaces, temples, and residential buildings, offering panoramic views of the desert landscape.

- **Kumbhalgarh Fort, Rajasthan:**
  - o Constructed by Rana Kumbha in the 15th century, Kumbhalgarh Fort is renowned for its massive walls, extending over 36 kilometers, making them some of the longest in the world.
  - o The fort complex includes numerous palaces, temples, and gardens and served as a refuge for the Mewar rulers during conflicts.
- **Ranthambore Fort, Rajasthan:**
  - o Situated within Ranthambore National Park, this fort was built in the 10th century by the Chauhan rulers.
  - o his majestic fort, guarded by the world's second-longest wall (36 km), served as a refuge for Mewar rulers during conflicts.
  - o Known for its strategic hilltop location and formidable defenses, it played a crucial role in Rajasthan's history, especially during the Delhi Sultanate and Mughal periods.
  - o The fort complex includes temples, palaces, and reservoirs, offering stunning views of the national park and its wildlife.

GIST OF KURUSHETRA - TRIBAL ART AND CULTURE

CHAPTER 1- INNOVATIVE SCIENCE PROJECTS TO PRESERVE TRIBAL CULTURE

Tribal communities in India possess a rich cultural heritage encompassing unique knowledge systems, traditions, and practices

- However, globalization and environmental changes threaten their cultural integrity. Science and technology can play a crucial role in preserving tribal culture while promoting sustainable development in tribal regions.
- In recent years, the Indian government has made significant strides in harnessing the power of science and technology to preserve the rich cultural heritage of the country's tribal communities.

Department of Science and Technology (DST) Initiatives:

- The DST, through its North East Centre for Technology Application & Reach (NECTAR), has implemented several innovative projects that bridge the gap between science and tribal knowledge:

1. Flute Technology of Culm Cutting or Stem Setting Technique: This project aims to revive the traditional knowledge of crafting flutes with specific tonal qualities. By employing the 'Culm Cutting' technique, NECTAR assists tribal artisans in producing high-quality flutes, enhancing their income and preserving this cultural art form.

2. Gasifiers and Other Bamboo Products: Recognizing the abundance of bamboo in tribal areas, NECTAR promotes the use of bamboo gasifiers. These eco-friendly devices convert bamboo into clean fuel, offering a sustainable alternative to conventional energy sources and reducing dependence on deforestation. Additionally, NECTAR supports the development and marketing of various bamboo products, creating income opportunities for tribals while promoting sustainable resource utilization.

3. Bamboo-based Technologies with a Green Material Approach:NECTAR spearheads research and development into innovative bamboo-based technologies. This includes exploring the use of bamboo for constructing houses, furniture, and other infrastructure, promoting a greener approach to development while aligning with tribal architectural styles.

NECTAR (North East Centre for Technology Application and Reach):

It is an autonomous society under the Department of Science & Technology, Govt. of India, headquartered in Shillong, Meghalaya. Established in 2012 by merging NMBA and MGA with NECTAR, its objective is to use technology for socio-economic development of the North Eastern Region in areas such as biodiversity, watershed management, telemedicine, and horticulture.

Blending Technology with Tradition: Bamboo Faucets and Water Towers:

A unique project involves developing bamboo faucets with in-built water filters. This marries traditional craftsmanship with modern technology, providing clean drinking water to tribal communities while preserving their connection to natural materials.

This ensures access to safe drinking water for tribal communities while minimizing health risks associated with contaminated water sources.

- Bamboo Water Towers: NECTAR promotes the construction of bamboo water towers, offering a sustainable and costeffective solution for water storage and distribution in tribal villages.
- Low-Cost Water Treatment Plants: Recognizing the scarcity of clean water in many tribal areas, DST supports the development and installation of low-cost water treatment plants.

Skill Development and Employment Generation:

- NECTAR provides training to tribal artisans in areas like bamboo processing, flute making, and water filter maintenance.
- This empowers tribal communities, fostering self-reliance and income generation, leading to the preservation of their cultural heritage through economically viable practices.

Ministry of Environment, Forest and Climate Change (MoEFCC) Efforts:

The MoEFCC complements DST's endeavors by promoting sustainable forestry practices and empowering tribal communities to manage their natural resources. Initiatives include:

- Joint Forest Management (JFM) programs: JFM fosters a collaborative approach between forest departments and tribal communities, empowering tribals to participate in forest conservation and benefit from sustainable harvesting practices.
- Recognition of Community Forest Rights: Recognizing the traditional knowledge and rights of tribals over forests, the MoEFCC empowers them to protect and manage their resources. This fosters a sense of ownership and incentivizes sustainable practices that preserve the cultural significance of forests for tribal communities

CHAPTER 2- THEYYAM: THE TRIBAL CULTURAL DANCE

Theyyam is a captivating ritual dance form that is deeply rooted in the indigenous cultural traditions of the tribal communities in the northern parts of Kerala, India. This sacred performance art is not merely a dance, but a profound expression of the spiritual beliefs, myths, and folklore of the local population.

Origins and Significance:

- The origins of Theyyam can be traced back several centuries, with the practice being an integral part of the animistic religious beliefs of the Malayan, Vannan, Velan, and other indigenous communities in the Malabar region of Kerala.
- The word "Theyyam" is derived from the Sanskrit word "Daivam," meaning "divine" or "god." In the Theyyam tradition, the performer is believed to be possessed by the divine spirit, transforming into a living deity during the ritualistic performance.

Ritual and Symbolic Representation:

- This performance is a complex and elaborate ritual that involves intricate costumes, elaborate makeup, and a captivating sequence of movements and chants.
- The performers, known as "Theyyakkaran," undergo a meticulous process of preparation, including fasting, purification rituals, and the application of intricate face masks and body paint.
- These elements are not merely decorative but hold deep symbolic significance, representing the various deities, spirits, and mythological figures that are venerated during the performance.

Diversity and Regional Variations:

- Theyyam is characterized by a remarkable diversity of styles and forms, with each region or community having its own unique variations.

- From the ornate and colorful Raktha Chamundi Theyyam to the fierce and intense Vishnumoorthi Theyyam, the range of Theyyam performances reflects the rich tapestry of the tribal cultural heritage.
- The rituals, costumes, and mythological narratives associated with each Theyyam form are distinct and often reflect the local history, beliefs, and traditions of the respective communities.

Characteristics of Theyyam:

- Theyyam artists use natural materials like charcoal, rice paste, turmeric, and colored clays for makeup.
- The makeup uses a limited palette, primarily red, black, yellow, and white. Each color has symbolic meaning:
- Red: Represents power, strength, and divinity.
- Black: Depicts fierceness, protection, and warding off evil.
- Yellow: Signifies prosperity, abundance, and knowledge.
- White: Represents purity, peace, and blessings.
- Mudi is an important trait. It is a religious crown composed of different coloured coconut and areca nut splices.

Theyyam Link with Nature:

- Reverence for Nature: Theyyam performances feature the veneration of deities and spirits associated with natural elements like the sun, moon, wind, and various flora and fauna. This reverence demonstrates the tribal communities' deep understanding and appreciation of ecological cycles.
- Seasonal Rhythms: The timing of Theyyam rituals is closely linked to agricultural and seasonal cycles. The dances are believed to invoke blessings for a bountiful harvest and the well-being of the community, showcasing an intimate knowledge of the local ecosystem.
- Medicinal Traditions: It possess extensive knowledge of the medicinal and herbal properties of local flora, which is incorporated into the rituals and costumes.
- Ecological Stewardship: The tribal communities practice sustainable resource management and environmental conservation, with these rituals involving the reverence and protection of sacred natural spaces.
- Spiritual Identity: It is a deeply spiritual practice that is integral to the tribal communities' sense of identity and connection to their ancestral lands, reinforcing their commitment to the well-being of their environment.

Cultural Preservation and Significance:

- Theyyam is not merely a cultural performance but a living, breathing representation of the spiritual and social fabric of the tribal communities in Kerala.
- It serves as a medium for the transmission of ancestral knowledge, mythology, and rituals, ensuring the preservation of the unique cultural heritage of these communities.
- The Theyyam performances are also deeply intertwined with the agricultural and ecological cycles of the region, often serving as a means of invoking the blessings of the divine for a bountiful harvest and the well-being of the community.

Conclusion:

Theyyam stands as a captivating and multifaceted cultural expression that embodies the rich tapestry of the tribal communities in Kerala. This ritual dance form not only showcases the artistic and performative talents of the local population but also serves as a powerful conduit for the preservation and transmission of their sacred beliefs, myths, and traditions. As a unique and vibrant aspect of India's cultural diversity, Theyyam deserves recognition and preservation as a testament to the resilience and creativity of the indigenous tribal communities.

CHAPTER 3- VITAL ROLE OF TRIBAL ART IN SAFEGUARDING CULTURAL IDENTITY

Tribal art in India is a vibrant and diverse array of cultural expressions, each distinctive in style, motifs, and techniques. Rooted in indigenous traditions and deeply connected to nature, these art forms offer a unique window into the lives, beliefs, and customs of various tribal communities across the country.

Tribal Arts in India:

- Warli Art (Maharashtra): Characterized by its simplistic yet evocative depictions of daily life, rituals, and folklore. Utilizes basic geometric shapes to convey harmony with nature.

- Gond Art (Central India): Celebrated for its vibrant hues, intricate patterns, and rich mythological themes. Inspired by nature and tribal lore, Gond artists create detailed narratives featuring deities, animals, and celestial beings.
- Madhubani Painting (Bihar): A traditional art form passed down through generations of Maithil women. Known for its intricate motifs, bold colors, and geometric patterns, often depicting scenes from Hindu mythology and rural life.
- Pattachitra Art (Odisha): Renowned for its meticulous detailing, vibrant colors, and mythological narratives. Painted on cloth or dried palm leaves, Pattachitra artworks frequently depict scenes from epics like the Ramayana and Mahabharata.
- Santhal Art (Eastern India): Features earthy tones, rustic charm, and tribal motifs. Santhal artists employ natural materials like clay, dyes, and bamboo to create artworks reflecting their deep connection to the environment and community.
- Saura Painting (Odisha): Vibrant colors, geometric patterns, and depictions of tribal deities and myths. Reflects the close relationship of the Saura tribe with nature and their spiritual beliefs.
- Bhil Art (Rajasthan & Madhya Pradesh): Known for its intricate patterns, bold colors, and depictions of folklore and rituals. Traditionally created on walls, floors, or paper, featuring motifs inspired by nature, animals, and deities.
- Phad Painting (Rajasthan): A narrative art form depicting stories of local deities, heroes, and legends. Created on large cloth scrolls, characterized by vibrant colors and intricate detailing.
- Pithora Painting (Gujarat & Madhya Pradesh): A ritualistic art form used to invoke blessings and ward off evil spirits. Features geometric patterns, animal motifs, and symbols of fertility and prosperity.
- Toda Embroidery (Tamil Nadu): Renowned for its intricate designs, geometric patterns, and use of natural materials. Often used to decorate traditional garments, reflecting the Toda tribe's reverence for nature and pastoral lifestyle.
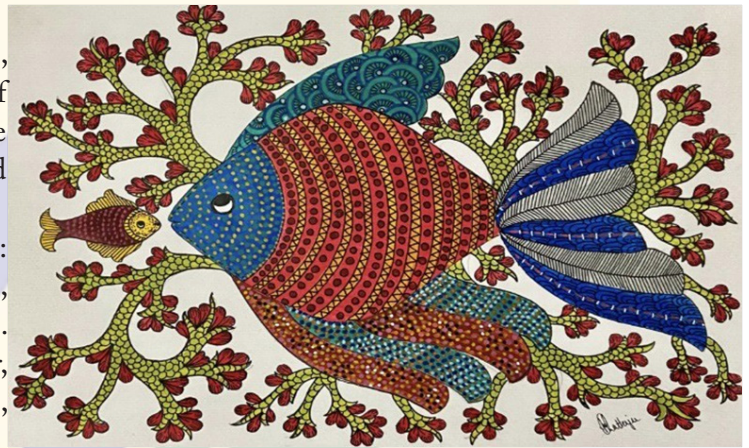
Tribal Art Safeguarding Culture in India:

- A Living Archive of Tradition: Tribal art serves as a living archive, documenting the history, mythology, and social structures of these communities.
- For instance, Warli paintings from Maharashtra depict hunting scenes and daily life, offering a glimpse into their traditional way of life. Similarly, the vibrant Madhubani paintings of Mithila narrate tales from epics like the Ramayana and Mahabharata, keeping these stories alive for future generations.
- Symbols Speak Louder Than Words: Tribal art is rich in symbolism, conveying complex ideas through geometric patterns, motifs, and natural elements.
- For example, Saura art of Odisha uses dots and circles to represent the cosmos and the interconnectedness of life. This form of visual storytelling allows them to transmit knowledge, beliefs, and rituals without written language.
- A Voice for the Marginalized: Tribal art is a powerful medium for self-expression and advocacy. The Bhil paintings of Madhya Pradesh often depict struggles with displacement and environmental degradation, bringing these issues to light. This art form empowers these communities to assert their identity and fight for their rights.

Challenges Faced by Tribal Art Forms in India:

- **Market Access and Exploitation:** Middlemen often act as gatekeepers, leaving artisans with a meager share of profits. Lack of access to fair markets and proper pricing mechanisms create economic hardship, discouraging younger generations from pursuing traditional art forms.
- **Commodification and Loss of Meaning:** Tribal art is increasingly seen as a commercial product, leading to dilution of its cultural significance. Mass production and inauthentic adaptations can erode the inherent value and symbolism associated with these art forms.
- **Urbanization and Changing Lifestyles:** Rapid urbanization and changing preferences threaten the very existence of these art forms. The traditional knowledge and skills associated with them may be lost as younger generations migrate to cities and embrace modern aesthetics.
- **Lack of Documentation and Research:** Many tribal art forms remain undocumented, making it difficult to understand their historical context and cultural significance. This lack of knowledge hinders efforts for preservation and promotion.
- **Environmental Degradation:** The availability of natural materials like clay, pigments, and fibers, crucial for many art forms, is threatened by environmental degradation. This can lead to a decline in the quality and authenticity of the art.

Way Forward:

- **Supporting Tribal Artisans:** Government initiatives like those by TRIFED (Tribal Cooperative Marketing Development Federation of India) can empower artisans by providing direct market access, training in business skills, and fair pricing mechanisms.
- **Preservation and Documentation:** Efforts like those by the Indira Gandhi Rashtriya Manav Sangrahalaya to document and archive tribal art forms are crucial. Research initiatives can shed light on their history and cultural significance.
- **Promotion and Awareness Campaigns:** Raising public awareness through exhibitions, workshops, and media campaigns can create a wider market for authentic tribal art and foster appreciation for its cultural value.
- **Educational Integration:** Introducing tribal art forms in school curricula can inspire young minds, cultivate respect for indigenous cultures, and encourage future generations to carry forward these traditions.
- **Sustainable Sourcing:** Promoting sustainable practices for procuring raw materials can ensure the long-term viability of these art forms and protect the environment.
- **Encouraging Innovation:** Supporting creative adaptations that retain the essence of traditional art forms while catering to contemporary audiences can broaden their appeal without compromising their cultural significance.

Conclusion:

Tribal art in India is not just visually stunning; it's a powerful force for cultural preservation. By safeguarding these art forms, we safeguard the unique identities and heritage of India's indigenous communities. As we move forward, it's crucial to recognize the value of tribal art and take steps to ensure its continued vibrancy for generations to come.

CHAPTER 4: TRIBAL CULTURE: THE POTENTIAL FOR GLOBAL REPRESENTATION

India, a land of rich diversity, boasts over 700 tribal communities, constituting roughly 8.6% of the population. These communities possess unique cultural identities, traditions, and knowledge systems that have been honed over millennia.

However, globalization and development often threaten the very essence of their existence. This article explores the potential of tribal cultures for global representation, highlighting their significance and advocating for their inclusion on the world stage.

Significance of Tribal Cultures:

- **Sustainable Practices:** Tribal communities have a deep connection with nature and have developed sustainable practices for resource management. Their indigenous knowledge systems on agriculture, forestry, and water conservation hold immense value in combating climate change.
- The Warli tribe of Maharashtra, for instance, practices sustainable shifting cultivation, preserving soil fertility.

- Biodiversity Conservation: Tribals are stewards of biodiversity hotspots, protecting ecosystems with their traditional practices. The Toda tribe of the Nilgiris restricts grazing during specific seasons, ensuring ecological balance.
- Cultural Wealth: Tribal art, music, dance, and folklore represent a vibrant tapestry of India's heritage. These expressions often depict their relationship with nature and their belief systems, enriching the nation's cultural identity.

Strategies for Global Representation:

- Mainstreaming Tribal Knowledge: Integrating tribal knowledge systems into mainstream education and development initiatives can foster a deeper understanding and appreciation of their value.
- Promoting Art and Culture: Supporting and promoting tribal art, music, and dance through festivals, exhibitions, and cultural exchange programs can create a global platform for their voices to be heard.
- Empowering Communities: Providing educational opportunities and skill development programs can empower tribal communities to represent themselves effectively and contribute meaningfully to global discourse.

Examples of Initiatives:

- TRIFED (Tribal Cooperative Marketing Development Federation of India): A Government of India initiative promoting tribal products and handicrafts on a national and international scale.
- Van Dhan Vikas Yojana: This scheme aims to empower tribals by establishing Van Dhan Kendras for value addition and marketing of minor forest produce.

Conclusion:

Tribal cultures are not relics of the past; they offer valuable solutions for the future. Recognizing their potential for global representation in sustainable practices, biodiversity conservation, and cultural enrichment is crucial. By promoting their knowledge systems, empowering communities, and facilitating their inclusion in global dialogues, we can create a more inclusive and sustainable world.

CHAPTER 5: AGRICULTURAL FESTIVALS: INTEGRAL PART OF TRIBAL CULTURE

Tribal communities in India, and across the world, have a deep-rooted connection to their land and the rhythm of the seasons. This connection is profoundly reflected in their vibrant cultural tapestry, with agricultural festivals forming its very core.

These festivals transcend mere celebration; they serve as social glue, expressions of gratitude, and affirmations of their unique identity.

Significance of Agricultural Festivals:

- Celebrating the Cycle of Life: Agricultural festivals mark distinct stages in the agricultural cycle, from sowing seeds (Sarhul among the Munda tribe) to harvesting the bounty (Nuakhai among the tribals of Odisha).
- These celebrations acknowledge the dependence on nature's blessings and express gratitude for a successful harvest.
- Social Cohesion and Sharing: Festivals serve as a powerful tool to strengthen social bonds within the community. Shared rituals, feasting, and cultural performances like dances (Karma dance during the Karma festival) create a platform for collective joy and reaffirm the importance of cooperation.
- Preserving Traditions: Each festival is a repository of age-old customs, songs, stories, and folklore passed down through generations. These celebrations ensure the continuity of tribal heritage and identity in a world undergoing rapid change.
- Propitiating Deities: Many agricultural festivals are imbued with religious significance. Offerings are made to deities associated with fertility, land, and the harvest (Karam Rani in the Karma festival) to propitiate them and ensure future agricultural prosperity.

Examples of Agricultural Festivals in India:

- Sarhul (Jharkhand): Celebrates the onset of spring and the sowing season.
- Nuakhai (Odisha): A harvest festival marked by offering the first produce to the deity and communal feasting.

- Baisakhi (Punjab): Celebrates the Punjabi New Year, coinciding with the wheat harvest.
- Pongal (Tamil Nadu): A harvest festival dedicated to the Sun god Surya for a bountiful crop.
- Hornbill Festival (Nagaland): A week-long extravaganza showcasing the cultural heritage of various Naga tribes, including agricultural dances and displays of agricultural products.
- Madai (Chhattisgarh): Celebrated by the Gond tribe, it's a harvest festival marked by vibrant performances, rituals seeking blessings for prosperity, and a display of agricultural implements.
- Bhagoria (Madhya Pradesh & Maharashtra): A pre-Holi celebration by the Bhil tribe, it allows for social interaction and potential matchmaking amidst colorful festivities. While not purely agricultural, it often coincides with the harvest.

Challenges and the Way Forward:

- Modernization and Urbanization: The traditional agrarian lifestyle of tribal communities is under threat from modernization and urbanization. This can lead to a decline in the significance and practice of agricultural festivals.
- Climate Change: The increasing unpredictability of weather patterns due to climate change disrupts agricultural cycles, potentially impacting the relevance and timing of these festivals.
- Documentation and Preservation: Tribal agricultural festivals are often passed down orally. Systematic documentation and efforts to raise awareness can ensure their preservation for future generations.

Conclusion:

In conclusion, agricultural festivals are not mere celebrations; they are the lifeblood of tribal cultures. Recognizing their significance and ensuring their continuity is vital to preserving the rich heritage and traditions of these indigenous communities. By promoting these festivals and supporting tribal communities, we can celebrate the deep connection between humanity and nature.

CHAPTER 6: TRIBAL FOLK DANCES OF NORTH-EAST INDIA

The North-Eastern states of India, aptly known as the "Seven Sisters" and Sikkim, boast a rich tapestry of cultures and traditions. A vibrant expression of this cultural mosaic is found in the region's captivating tribal folk dances. These dances are more than mere entertainment; they are deeply woven into the social fabric, celebrating agricultural cycles, showcasing martial prowess, and narrating stories passed down through generations.

Celebrating Life's Rhythms:

- Bihu (Assam): A joyous celebration of the Assamese New Year and the spring harvest, Bihu features energetic group dances by men and women, often accompanied by vibrant dhol beats.
- Wangala Dance (Meghalaya): Performed by the Garo tribe, the Wangala, also known as the "Hundred Drum Dance," is a spectacular display of rhythmic footwork and synchronized drumming, celebrating the harvest season.
- Nongkrem Dance (Meghalaya): This signature dance of the Khasi tribe is a thanksgiving ceremony performed during the Nongkrem festival. Dancers in colorful attire gracefully circle a large monolith, symbolizing prosperity and a bountiful harvest.
- Hojagiri (Tripura): Also known as the "Fire Dance," Hojagiri is a mesmerizing performance by the Tripuri community. Dancers twirl flaming torches in intricate patterns, showcasing courage and seeking blessings for good health and prosperity.
- Cheraw Dance (Mizoram): The Cheraw, also known as the "Bamboo Dance," is a vibrant display of skill and agility. Dancers skillfully maneuver on and between bamboo poles, mimicking the movements of birds and showcasing the community's collective spirit.
- Kuki Dance (Manipur & Nagaland): This energetic dance by the Kuki tribes portrays their rich martial heritage. Dancers, adorned in traditional attire and wielding mock weapons, depict hunting skills and battle prowess.
- Thang-Ta (Manipur): More than just a dance, Thang-Ta is a traditional martial art form of Manipur. Energetic movements and mock combat sequences showcase the strength and fighting spirit of the community.
- Bardoichila (Assam): Performed by the Bodo tribe, Bardoichila is a graceful dance depicting the arrival of the monsoon season. Dancers dressed in white and adorned with flowers symbolize the life-giving rains and their importance for agriculture.
- Zeliang Dance (Nagaland): This captivating dance by the Zeliang tribe is known for its distinctive headgear and rhythmic footwork. The dance narrates stories of the community's history and traditions.
- Aoling (Nagaland): Performed by the Konyak tribe, Aoling is a celebratory dance during the Aoling festival, marking the end of winter and the beginning of spring. Dancers adorned in vibrant attire showcase their joy and welcome the new season.