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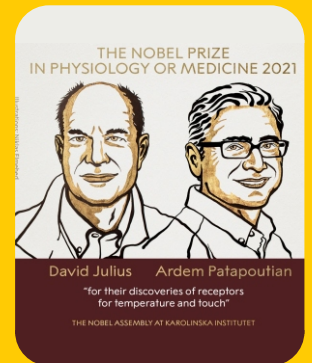**42** ND EDITION

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THE NOBEL PRIZE
IN PHYSIOLOGY OR MEDICINE 2021

David Julius   Ardem Patapoutian

"for their discoveries of receptors
for temperature and touch"

THE NOBEL ASSEMBLY AT KAROLINSKA INSTITUTET

SCHOOLS OF INDIAN PHILOSOPHY

NOBEL PRIZE FOR PHYSIOLOGY OR MEDICINE 2021

CONTENTS

GENERAL STUDIES - I

SCHOOLS OF INDIAN PHILOSOPHY

GS-I   CULTURE & HERITAGE

Context
- PM Modi unveiled idol of AdiShankaracharya at KedarnathDham.

Shankaracharya (788 - 820 AD)
- Shankaracharya **consolidated the doctrine of Advaita Vedanta.**
- He is credited with unifying and establishing the main currents of thought in Hinduism.

> Advaita Vedanta refers to the non-dualistic school of Hindu philosophy, which is derived mostly from the Upanishads. Dvaita means duality, and Advaita means non-duality. Advaita school believes that Brahman is the one and only reality and everything else is a mere appearance, projection, formation or illusion.

- His works in Sanskrit discuss the unity of the Ātman and Nirguna Brahman "brahman without attributes".
- His works elaborate on ideas found in the Upanishads.
- Shankara's publications criticised the ritually-oriented Mīmāṃsā school of Hinduism.
- He also explained the key difference between Hinduism and Buddhism, stating that Hinduism asserts "Ātman (Soul, Self) exists", while Buddhism asserts that there is "no Soul, no Self".
- Shankara travelled across the Indian subcontinent to propagate his philosophy through discourses and debates with other thinkers.
- He established the importance of monastic life as sanctioned in the Upanishads and Brahma Sutra, in a time when the Mīmāṃsā School established strict ritualism and ridiculed monasticism.

Indian Philosophy
- **Indian Philosophy** (or, in Sanskrit, **Darshanas**), refers to any of several traditions of philosophical thought that originated in the **Indian subcontinent**, including **Hindu philosophy**, **Buddhist philosophy**, and **Jain philosophy**.
- It is considered by Indian thinkers to be a **practical discipline**, and its goal should always be to **improve human life**.

Orthodox (Hindu) Schools
- The main Hindu orthodox (astika) schools of Indian philosophy are those codified during the medieval period of Brahmanic-Sanskritic scholasticism, and they take the ancient Vedas (the oldest sacred texts of Hinduism) as their source and scriptural authority.

Heterodox (Non-Hindu) Schools
- The main heterodox (nastika) schools, which do not accept the authority of the Vedas, include: Carvaka, Buddhism and Jainosm.

THE SIX DARSANA-S:

NYAYA, the school of logic argumentation and discussion

VAISESIKA, the atomist school, associated with Nyaya, which assumes the reality of the many

SAMKHYA, the 'enumeration' school which posited a dualism between matter (*prakrti*) and the self (*purusa*), both of which are real, though ontologically distinct;

YOGA, the theistic school of Patanjali which assumes the metaphysics of Samkhya;

PURVA MIMAMSA, the tradition of Vedic exegesis which assumes the reality of the many;

UTTAR MIMANSA OR VEDANTA, the tradition which develops from the Upanisads and consists of three major perspective: Dwaita, Vishista Advaita and Advaita Vedanta

Philosophical Schools

	Philosopher	System	Text
1	Bṛhaspati	Cārvakadarśana	Bṛhaspatyasūtra
2	Mahāvīra	Jainadarśana	Āgama sāhitya
3	Siddhārtha Gautama	Bauddhadarśana	Buddha Tripiṭaka
4	Kapila	Sāṃkhyadarśana	Sāṃkhya-sūtra
5	Pātanjali	Yogadarśana	Yoga-sūtra
6	Kaṇāda	Vaiśeṣikadarśana	Vaiśeṣika-sūtra
7	Gautama	Nyāyadarśana	Nyāya-sūtra
8	Jaiminī	Mīmāṃsādarśana	Mīmāṃsā-sūtra
9	Bādarāyaṇa	Vedāntadarśana	Vedānta-sūtra

In a nutshell,

INDIAN PHILOSOPHY AT A GLANCE

DARSHANA	REALITY	POSITION OF ATMA	NO. OF ATMA	CONSCIOUSNESS	MATERIAL ELEMENTS	POSITION OF ISHVARA (GOD)	SOURCE OF KNOWLEDGE	STATUS	SUMMUM - BONUM	Methods of attainment of Summum Bonum
CHARVAKA (VATSYAYANA)	(One) Matter	No Soul	Not Available	Result Of Combination Of Matter	Earth Water Fire, Air	No Ishvara	Perception Only	Heterodox Atheist	Pleasure (Sensual)	Live Happily
VAISESIKA (KANAD)	(Many) Nine Substances	Yes Souls Substances	Many	Accidental Quality	Earth, Water, Fire, Air, Ether, Mind, Soul Time, Space	Ishvara	Perception Inference	Orthodox Theist	Liberation Petrification Of Soul	Yogic Methods Of Dhyana Etc.
NYAYA (GOTAM)	(Many) Nine Substances	Yes Souls Substances	Many	Do	Do	Do	Perception Inference Comparison Testimony	Orthodox Theist	Do	Do
SAMKHYA (KAPIL)	Two Prakrti And Purusa	Purusha One Of The Two Realities	Many	Purusha As Pure Conscious Principle	24 Elements	No Ishvara	Perception Inference Testimony	Orthodox Atheist	Liberation (Separation)	Yogic Methods Of Dhyana Etc.
YOGA (PATANJALI)	Three Purusha Prakrti & Purusha-Vishesa	Purusha One Of The Three Realities	Many	Same As In Samkhya	Same As In Samkhya	Yes Special Purusa	Perception Inference Testimony	Orthodox Theist	Liberation (Separation)	Various Methods
MIMAMSA (JAIMINI)	NINE Substances (as In Nyaya)	A Substance	Many	As In Vaisesika	As In Vaisesika	No Ishvara	As In Nyaya+ Postulation And Non Existence	Orthodox Atheist	Liberation Petrification Of Soul	Yogic Methods
VEDANTA (SHANKAR)	One Brahman	Atma One In Many	One	Pure Consciousness	As In Samkhya	Yes Apara Brahman	As In Mimamsa	Orthodox Theist	BLISS Identification With Brahman	Yogic Methods

Nyaya	• Logic & analytic philosophy
Vaisheshika	• Few atomic building blocks & consciousness
Mimamsa	• Critical interpretation of the Vedas
Vedanta	• The "essence" of the Vedas
Samkhya	• Consciousness & Matter
Yoga	• Meditation, Contemplation
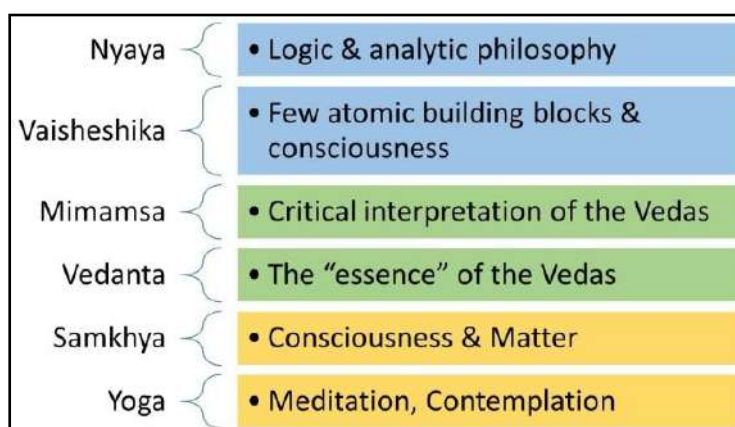
Buddhism

- It is a non-theistic system of beliefs based on the teachings of **Siddhartha Gautama**, an Indian prince later known as the **Buddha**, in the 5th Century B.C.
- The question of God is largely irrelevant in Buddhism, and it is mainly founded on the **rejection** of certain orthodox **Hindu philosophical concepts** (although it does share some philosophical views with Hinduism, such as belief in **karma**).
- Buddhism advocates a **Noble Eightfold Path** to end suffering, and its philosophical principles are known as the **Four Noble Truths** (the Nature of Suffering, the Origin of Suffering, the Cessation of Suffering, and the Path Leading to the Cessation of Suffering). Buddhist philosophy deals extensively with problems in **metaphysics**, **phenomenology**, **ethics** and **epistemology**.

Jain philosophy

- The central tenets of Jain philosophy were established by **Mahavira** in the **6th Century B.C.**, although Jainism as a religion is much older.
- A basic principle is **anekantavada**, the idea that **reality** is **perceived differently** from different points of view, and that no single point of view is completely true (similar to the Western philosophical doctrine of <u>Subjectivism</u>). =
- According to Jainism, only **Kevalis**, those who have infinite knowledge, can know the true answer, and that all others would only know a **part of the answer**.
- It stresses **spiritual independence** and the **equality of all life**, with particular emphasis on **non-violence**, and posits **self-control** as vital for attaining the realization of the soul's true nature.
- Jain belief emphasizes the **immediate consequences of one's behavior**.

MAHAPARINIRVANA TEMPLE

GS-I CULTURE & HERITAGE

Context
- PM visited UP on October 20 to inaugurate Kushinagar International Airport.
- PM participated in an event marking Abhidhamma Day at Mahaparinirvana Temple.

About
- The Parinirvana Stupa is a Buddhist temple in Kushinagar, India which is said to be the **place of death of Gautama Buddha, the founder of Buddhism.**
- Alexander Cunningham conclusively proved that Gautama Buddha had died in the area.
- The present temple was built by the Indian Government in 1956 as part of the commemoration of the 2,500th year of the Mahaparinivana or 2500 BE (Buddhist Era).
- Inside this temple, **there is a Reclining Buddha image lying on its right side with the head to the north.**
- The statue is 6.1 m long and rests on a stone couch.
- After 45 years of missionary activities, the Buddha, severely stricken with illness, finally reached to Kushinagar, where he ordained his last disciple and uttered his last words to the sangha and attained Parinirvana in 487 BCE.
- Maurya king Ashoka reportedly visited Kushinagar in 260 BCE where he built several caityas, stupas to honor the Buddha's place of Nirvana.
- Buddhist sites in Kushinagar were steadily expanded during the Kushan empire (c. 50-241 CE), while Kushinagar witnessed a golden age during the Gupta empire(c. 320-647 CE) when the Parinirvana Stupa was largely expanded and Parinirvana Temple was reconstructed along with a huge reclining Buddha statue.

Abhidhamma Day
- The day symbolises the end of three-month rainy retreat – Varshavaas or Vassa – for the Buddhist Monks, during which they stay at one place in vihara& monastery and pray.
- The event will also be attended by eminent Monks from Sri Lanka, Thailand, Myanmar, South Korea, Nepal, Bhutan and Cambodia, as well as Ambassadors of various countries.

Demography of Kushinagar
- Kushinagar is an international Buddhist pilgrimage centre. However, it has a negligible population of Buddhists.
- According to the Census of India 2011, out of the 35.64 lakh population of Kushinagar district, the majority were Hindu (29.28 lakh), followed by Muslim (6.20 lakh), and Christian (5,006).
- The Buddhist population of the district was just 4,619, or 0.12 per cent of the total.
- **Ten other districts of UP — Kheri, Maharajganj, Siddharthnagar, Sultanpur, Basti, Mainpuri, Jaunpur, Pratapgarh,Hardoi, and Azamgarh —** have larger Buddhist populations than Kushinagar.
- Kheri, which has been in the news for the deaths of eight people including four protesting farmers on October 3, had the largest Buddhist population (18,454) across all districts of UP in 2011.

Kushinagar and The Buddha
- Among the most important of Buddhist pilgrimages, Kushinagar was where The Buddha attained Mahaparinirvana (ultimate salvation) in c. 483 BC.
- Today's Kushinagar is identified w   ith Kushinara, **capital of the ancient Malla republic,** which was one of the 16 mahajanapadas of the 6th-4th centuries BC.
- The area went on to be part of the kingdoms of the Mauryas, Shungas, Kushanas, Guptas, Harshavardhana, and the Palas.
- Kushinara is believed to have been inhabited until at least the 12th century.
- The first excavations in Kushinagar were carried out by Alexander Cunningham and ACL Carlleyle, who unearthed the main stupa and the 6-metre-long statue of the Reclining Buddha in 1876.
- Kushinagar is among the very few places in India where The Buddha is depicted in reclining form.

Read: https://www.iasgyan.in/blogs/ashokan-inscriptions-the-edicts-of-ashoka

BHASKARABDA

Context

- Bhaskarabda, an era counted from the date of the ascension of a seventh century local ruler, will be added to Saka and Gregorian eras in the official calendar of the Assam Government.

About

- Bhaskarabda, **an era counted from the date of the ascension of a 7th-century local ruler,** will be added to the Saka and Gregorian in the official calendar of the Assam government.
- Unlike Gregorian, where a day starts at midnight, the **Assamese calendar begins and ends at sunrise over 24 hours.**
- While the Gregorian goes by the solar cycle, the Saka and Bhaskarabda eras use a luni-solar system based on both the phases of the moon and the solar year.
- The gap between Bhaskarabda and Gregorian is 593 years.
- **Bhaskarabda began when Kumar Bhaskaravarman was crowned ruler of the Kamrupa kingdom.**
- He was a contemporary and political ally of northern Indian ruler Harshavardhana.

Gregoria Calender

- The Gregorian calendar is the calendar used in most of the world. It was **introduced in October 1582 by Pope Gregory XIII** as a minor modification of the Julian calendar, reducing the average year from 365.25 days to 365.2425 days, and adjusting for the drift in the 'tropical' or 'solar' year that the inaccuracy had caused during the intervening centuries.
- The calendar spaces leap years to make its average year 365.2425 days long, approximating the 365.2422-day tropical year that is determined by the Earth's revolution around the Sun.
- The Gregorian calendar **modified the existing Julian calendar**, which Julius Caesar had introduced to the ancient Roman Republic in 46 BCE.

Saka Calender

- **Introduced in:** 79 CE
- **Adopted in:** 1957
- **Starts on:** March 22
- **Number of days:** 365

- **Number of months:** 12
- **Basis of Calendar:** Luni-solar
- **Perused by:** Gazette of India, All India Radio News Broadcast, Government of India

The names of the months in the Saka Calendar are

- Chhaitra (March 21 – April 20)
- Vaishakha (April 21-May 21)
- Jyeshtha (May 22-June 21)
- Ashadha (June 22- July 22)
- Shravana (July 23-August 22)
- Bhaadra (August 22-September 22)
- Ashwin (September 23-October 22)

- Kartika (October 23-November 21)
- Agrahayana (November 22-December 21)
- Pausha (December 22-January 20)
- Magha (January 21- February 19) and
- Phalguna (February 20-March 20/21)

HANUTHANG-HANDANBROKE-ZUNGPAL-TURTUK ROAD	GS-I GEOGRAPHY

Context

- Construction on 05 major road infrastructure development projects was launched by Governor of Ladakh from Turtuk, the northernmost village of India.

About

- Construction of road Hanuthang-Handanbroke-Zungpal-Turtuk, will provide inter **valley connectivity between Hanuthang-Handanbroke (Indus Valley) and Zungpal-Turtuk (Shyok Valley) across the Stakpuchan Range.**
- This will also reduce the travel time to Three and Half Hours from existing Nine Hours to Turtuk via Leh without crossing the treacherous Khardungla pass.
- **These roads are:**
  1. 78 Km road Khalse to Batallik,
  2. 50 Km road Kargil to Dumgil which will also include construction of a tunnel at Hambotingla to ensure seamless connectivity from Kargil to Batallik,
  3. 70 km road Khalsar to Shyokvia Agham and
  4. 31 Km Tangtse to Lukung.
- All these roads are used extensively by travelers to reach sought after tourist destinations such as Hundar (Nubra Valley), Turtuk village, Shyok, Pangon-Tso lake and Aryan villages of Dah, Garkone Darchik etc.

Some important Maps
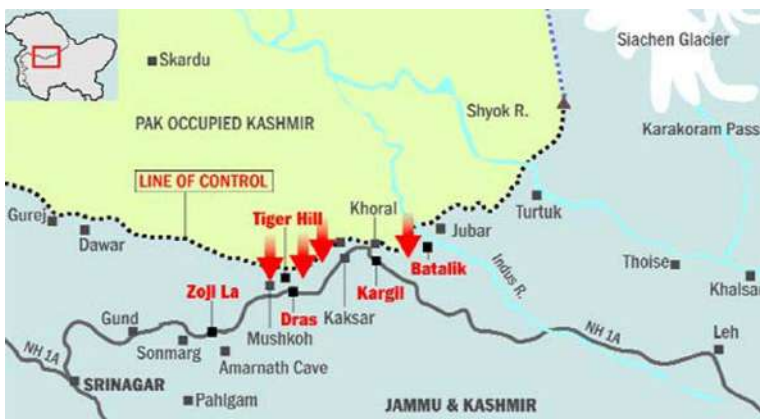
GENERAL STUDIES - II

POWER OF CBI

Context
- The Centre has told the **Supreme Court that the West Bengal government's power to withhold consent to inquiry into cases by the** Central Bureau of Investigation is not absolute

Background
- West Bengal government had alleged that **the CBI was investigating the cases without permission from the state.**
- On September 28, the Supreme Court had asked the Centre to explain its stand on the matter.

Central government Argument
- A **state government's power to give consent to the central agency cannot include an omnibus power to pass sweeping directions, or withdraw consent** that has already granted.
- The statutory power **conferred upon the State Government under Section 6 of Delhi Special Police Establishment Act [under which the CBI was established] is always coupled with a responsibility to exer**cise that power on a case-to-case basis with an inbuilt condition of exercising the same in larger public interest and not to shield any accused.
- CBI can **investigate crimes related to the Union List in the Constitution**.
- It noted that the Union List includes entries related to the defence of India, and arms and ammunition.

About Consent of State
- In order to **conduct an investigation in a state, the CBI must mandatorily have the consent of that state government**.
- The general consent is routinely given by State governments for periods ranging from **six months to a year to the CBI and all agencies under the Delhi Special Police Establishment (DSPE) Act, 1946**.
- The consent is necessary as the jurisdiction of these agencies is confined to Delhi and Union Territories under this Act.

About Central Bureau of Investigation
Establishment
- The Central Bureau of Investigation (CBI) **was set up in 1963 by a resolution of the Ministry of Home Affairs. Later, it was tran**sferred to the Ministry of Personnel and now it enjoys the status of an attached office.
- The **Special Police Establishment (which looked into vigilance cases) setup in 1941 was also merged with the CBI**.
- The **establishment of the CBI was recommended by the Santhanam Committee on Prevention of Corruption (1962–1964).**
- The CBI is not a statutory body. It derives its powers from the Delhi Special Police Establishment Act, 1946.
Functions
- The **CBI is the main investigating agency of the Central** Government.
- It plays an important role in the prevention of corruption and maintaining integrity in administration.
- It also provides assistance to the Central Vigilance Commission and Lokpal.
Composition of CBI
- The **CBI is headed by a Director.**
- The **Director of CBI has been provided security of two-year tenure in** office by the CVC Act, 2003.
- The Central Government shall appoint the Director of CBI on the recommendation of a three-member committee consisting of the Prime Minister as Chairperson, the Leader of Opposition in the Lok Sabha and the Chief Justice of India or Judge of the Supreme Court nominated by him.

CONTEMPT OF COURT

Context
- Attorney-General of India K.K. Venugopal has refused consent to a request made to permit to initiate contempt proceedings in the Supreme Court against the controversial Pegasus software creator and top bureaucrats.

Contempt of Court in India
- Supreme Court is declared a **Court of Record under Article 129.** As a court of record, it has all the powers of such a court including the power to punish for its contempt.
- **Under Article 129 and 142 of the constitution of the Supreme Court, it** has been vested with power to punish for contempt of court.

Types of Contempt of Court

- Contempt can be criminal or civil.
- Criminal contempt involves an intentional interference with the administration of justice.
- Civil contempt is disobedience to orders or judgments of the court.
- Criminal Contempt:
- Scandalises or tends to scandalise, or lowers or tends to lower the authority of, any court;
- Prejudices, or interferes or tends to interfere with, the due course of any judicial proceeding;
- Interferes or tends to interfere with, or obstructs or tends to obstruct, the administration of justice in any other manner.

Contempt of Court Act-1971

- **Article 129 and 215 of the Constitution of India empowers the Supreme Court and High Court respectively to punish people for their respective contempt**.
- Section **10 of The Contempt of Courts Act of 1971 defines the power of the High Court to punish contempt o**f its subordinate courts.
- Power to punish for contempt of court under Articles 129 and 215 is not subject to Article 19(1) (a).
- A contempt of court may be punished with simple imprisonment for a term, which may extend to six months, or with fine.

Reason behind its existence

- Needed to punish wilful disobedience to court orders (civil contempt),
- To prevent interference in the administration of justice.
- To prevent threats to judges.
- Insulate the institution from unfair attacks.
- Prevent a sudden fall in the judiciary's reputation in the public eye.

Needs to reforms

- Social Media is full of judiciary criticism. It is not good to waste the time of judiciary in exercising its power to punish for its contempt.
- England itself abolished the offence of "scandalising the court" in 2013, from where the idea has been borrowed.
- Contempt of law prevents media from looking at the functioning of judiciary.
- Definition of criminal contempt in India is extremely wide, and can be easily invoked.
- Suomotu powers of the Court to initiate such proceedings only serve to complicate matters.
- Criminal contempt is completely asynchronous with the modern democratic system, which recognises freedom of speech and expression as a fundamental right.

Way Forward

- It would be a progressive move if the courts itself focus on improving its accountability and transparency, that can result in improving its public image.

ANTI DEFECTION LAW   *GS-II POLITY*

Context

- Recently, the Calcutta High Court has given West Bengal Assembly Speaker a deadline to pass an order in the defection case involving a Member of Legislative Assembly (MLA).
- Anti-defection proceedings are also going on in other states such as Jharkhand and Rajasthan.

Issues arising out of Defection

- Weakening of electoral mandates as legislators are elected on the ticket of one party but switch to another for financial gains.
- Instability in the government as numbers of the functioning government declines.
- Promote **Horse trading**
- Acts against smaller parties are their MLA are most sought out.

Benefits of Anti-Defection law

- **Ensure stability** to the government.
- **Promotion of loyalty to the party** and citizens
- **Facilitates merger of Political parties** without bringing down the wrath of anti – defection law.
- Reduction of corruption at political level

Issues arising out of Anti –Defection law

- **Politicised the post of speaker** as speaker has acted on behalf of the interest of his party.
- **Curtailed the freedom of Individual** MLA, as they cannot speak against Parent party whips.
- **Declined the quality of debates** and discussions in parliament.
- **Weakens the legislative control** over executive as the control become party based rather than issue based.

Way Forward

- Anti –defection law **must be applicable only for the issues causing instability of government.**
- As per the **National Commission to review the working of constitution**, the decision to disqualify the members should lie with president or governor and should act on the advice of election commission.
- Supreme Court has highlighted that there should be an independent authority to take up impartial case of defection.

About Anti-Defection law

Constitutionality	- Part of **10th Schedule**. - Inserted through **52nd amendment** - Amended via **91st amendment**
What it does	- Lays down the process for disqualification of legislator by the presiding officer of respective house - Decision of the presiding officer in such case is Final. (Judicial review applies after Kihoto Holohalan Judgement)
Grounds for Disqualification	- Voluntary giving up the membership - Voting or abstaining contrary to direction issued by the party. - Joining of the party by Independent Members - Joining of the Party by nominated members after 6 months.
Exceptions	**Not allowed for parties split (Earlier :allowed) (Post 91st amendment act)** - If 2/3rd members decide to merge into other parties or floats independent party (It was 1/3rd before the 91st amendment act).
Authority	**Presiding officer of the house has final verdict**.

Different Committee Guidelines Related to Anti-Defection law

1. Dinesh Goswami Committee on Electoral Reforms:

- Focussed on limiting the disqualification-
  - o Voluntary giving up the membership of the party.
  - o Voting or abstaining contrary to the party order in case the government stability was in question or no confidence motion was being voted.

2. Law Commission (170th Report)

- Deletion of the provisions which exempt splits and mergers from disqualification
- **Treating the pre-poll alliances** as Political parties.
- **Limiting the issuance of whips** when the government is in danger.

3. Election Commission:

- Decisions under the Tenth Schedule should be made by the President/ Governor on the **binding advice of the Election Commission**.

4. Supreme Court Judgement:

- **Kihoto Holohan Judgement**
  - o Provided Judicial review for the Power of Speaker
  - o Held Speaker power to adjudicate on defection as constitutional.
  - o Minority view held that Speaker power of adjucation is subject to Political bias, hence unconstitutional in nature.
  - o The Court held that an order of the Speaker under the 10th Schedule could be subject to judicial review only on four grounds:
    - ▪ mala fide
    - ▪ perversity
    - ▪ violation of the constitutional mandate
    - ▪ order passed in violation of natural justice
  - • **Karnataka Judgement -2019**
  - o Disqualification under Tenth Schedule **doesn't create a bar for contesting** re-elections.
  - o Section 36 of the Representation of the People Act, 1951 **does not contemplate such disqualification**.
  - o Disqualified members under 10th schedule cannot hold any post in government.

Context

- Social media platforms have made clear that self-regulation is not working, the White House asserted.

Background

- In the internet of things, **ideas take a gigantic leap every day and disruption (both good and bad) is the norm.**
- One such disruption **which has revolutionised the way information is exchanged in real time has been the advent of Social** media.
- It has triggered an **information revolution the world over that has forced people, governments and organisations, both public and private, to rethink strategies on how they manage their information and engage in an increasingly interconnected world**.
- It has **challenged information hierarchies, opened up access and produced an entirely new ecosystem of information exchange**. Technological innovations are rapid and constantly evolving, making barriers, borders and control irrelevant.
- The latest **figures peg social media users in India at 143 million and a 100 percent jump in the number of users in rural India from 2014 to 2015**.
- The report by the Internet and Mobile Association of India says, "The fact that almost two thirds of the users are already accessing social media through their mobiles is a promising sign.
- With the expected increase in **mobile traffic the number of users accessing social media on the mobile is only bound to increase,"**
- Despite internet penetration not crossing 16% of the population, the availability of low cost mobile devices has become a game changer.

Impact of social media

- For the Indian government, the internet remains the chosen platform for socio-economic **empowerment schemes, which also makes India uniquely dependent on internet platforms for its development while**, at the same time, it heightens the risks of India's vulnerabilities.
- In a more ugly turn of events, **mobile and social network interfaces were used to send offensive clips and hate messages that triggered** panic and mass exodus of north east Indians from large parts of India in the aftermath of the ethnic clashes in Assam in 2012.
- In September 2013, a morphed video on YouTube was used to fan communal riots in Muza arnagar in Uttar Pradesh and led to mass panic.
- These incidents snowballed into a cyber-security challenge and exposed a facet of the medium that could be exploited by anti-national elements and required immediate attention.

Regulation of social media

- The New IT Rules pertain to **OTT platforms, social media as well as digital news media organisations.**
- However, digital news media organisations are already bound by the Press Council of India's code of ethics.

Associated Supreme Court Cases

- The genesis of these rules lies in the **Prajwala case v/s union of India, the Supreme Court (SC) ordered the government to frame the necessary guidelines/Standard Operating Procedure (SOP) and implement them to "eliminate child pornography, rape and gang rape imagery**, videos, and sites in content hosting platforms and other applications".
- In Tehseen S. Poonawalla, 2018 case, the SC gave the government full freedom to stop/curb dissemination of "irresponsible and explosive messages on various social media platforms, which have a tendency to incite mob violence and lynching of any kind".

Threats associated with social media

- cyberbullying (bullying using digital technology)
- invasion of privacy.
- identity theft.
- your child seeing offensive images and messages.
- the presence of strangers who may be there to 'groom' other members

Context

- The Supreme Court (SC) scolded a petitioner for filing a Public Interest Litigation (PIL) without adequate research.

Background

- The concept of Public Interest Litigation (PIL) originated and developed in the USA in the 1960s.
- In the **USA, it was designed to provide legal representation to previously unrepresented groups and interests.**
- It was undertaken in recognition of the fact that the ordinary marketplace for legal services fails to provide such services to significant segments of the population and to significant interests.
- Such groups and interests include the poor, environmentalists, consumers, racial and ethnic minorities, and others.
- In India, the PIL is a product of the judicial activism role of the Supreme Court. It was introduced in the early 1980s.
- PIL is also known variously as **Social Action Litigation (SAL), Social Interest Litigation (SIL) and Class Action Litigation (CAL).**

Meaning of PIL

- PIL is absolutely necessary for maintaining the rule of law, furthering the cause of justice and accelerating the pace of realization of the constitutional objectives. In other words, the real purposes of **PIL(Public Interest Litigation)** are :
  - o Vindication of the rule of law.
  - o Facilitating effective access to justice to the **socially and economically weaker sections of the society**.
  - o Meaningful **realization of the fundamental rights**.
  - o Public interest litigation is the use of the law to **advance human rights and equality, or raise issues of broad public concern.**

Role of PIL

- It helps advance the cause of minority or disadvantaged groups or individuals.
- Public interest cases may arise from both public and private law matters.
- Public law concerns the **various rules and regulations** that govern the exercise of power by public bodies.
- Private law concerns those cases in which **a public body is not involved**, and can be found in areas such as employment law or family law.
- Public interest litigation is **most commonly used to challenge** the decisions of public authorities by judicial review.

Features of PIL

- **PIL is a strategic** arm of the legal aid movement and is intended to bring justice within the reach of the poor masses, who constitute the low visibility area of humanity.
- PIL is a totally **different kind of litigation** from the ordinary traditional litigation which is essentially of an adversary character where there is a dispute between two litigating parties,
- one making claims seeking relief against the other and the other opposing such claim or resisting such relief.
- PIL is brought before the **Court not for the purpose of enforcing the right of one individual against another** as happens in the case of ordinary litigation, but it is intended to promote and vindicate public interest.
- PIL demands that violations of constitutional and **legal rights of large numbers of people who are poor,** ignorant or in a socially or economically disadvantaged position should not go unnoticed and unredressed.
- PIL is essentially a **co-operative** e ort on the part of the petitioner, the State or Public Authority, and the Court to secure observance of the constitutional or legal rights, benefits and privileges conferred upon the vulnerable sections of the community and to reach social justice to them.
- In PIL, litigation is undertaken for the **purpose of redressing public injury,** enforcing public duty, protecting social,

> **LandMark Cases:**
> **HussainaraKhatoon v. State of Bihar**
> - Many have regarded this case as the first PIL in India.
> - The Court focused on the situation of under-trials in Bihar who had been in detention pending trial for periods far in excess of the maximum sentence for their offences.
>
> **Vishaka v. State of Rajasthan**
> - PIL was initiated in the Supreme Court to challenge sexual harassment in the workplace.
> - The Vishaka judgment recognized sexual harassment as "a clear violation" of the fundamental rights of equality, non-discrimination, life, and liberty, as well as the right to carry out any occupation.
>
> **M.C. Mehta v. Union of India**
> - The judgement lashed out at civic authorities for allowing untreated sewage from Kanpur's tanneries to make its way into the Ganges.
> - The court passed three landmark judgments and a number of Orders against polluting industries in the Ganga basin

collective, diused rights and interests or vindicating public interest.

- In **PIL, the role held by the Court is more assertive than in traditional actions**; it is creative rather than passive and it assumes a more positive attitude in determining acts.
- Though the PIL court enjoys a degree of flexibility unknown to the trial of traditional private law litigations, whatever the procedure adopted by the court it must be procedure known to **judicial tenets and characteristics of a judicial proceeding**.
- In a PIL, unlike traditional dispute resolution mechanisms, there is no determination on adjudication of individual rights.

Challenges

- PIL actions may sometimes **give rise to the problem of competing rights**. For instance, when a court orders the closure of a polluting industry, the interests of the workmen and their families who are deprived of their livelihood may not be taken into account by the court.
- It **could lead to overburdening of courts with frivolous PILs by parties with vested interests**. PILs today has been appropriated for corporate, political and personal gains. Today the PIL is no more limited to problems of the poor and the oppressed.
- **Cases of Judicial Overreach by the Judiciary in the process of solving socio-eco**nomic or environmental problems can take place through the PILs.
- PIL matters concerning the **exploited and disadvantaged groups are pending for many years**. Inordinate delays in the disposal of PIL cases may render many leading judgments merely of academic value.

Way Forward

- The court must be careful to see that the petitioner must be acting bona fide and not for personal gain.
- The court should not allow its process to be abused by politicians and others to delay legitimate administrative action or to gain political objectives.
- In shaping the relief the court must take into account its impact on those public interests.
- The PIL activists should be responsible and accountable.
- Since it is an extraordinary remedy available at a cheaper cost to all citizens of the country, it should not be used by all litigants as a substitute for ordinary ones or as a means to file frivolous complaints.

POLITICAL PARTIES
GS-II POLITY

Context

- Recently, election in Germany witnessed change of the regime.

About Political Party

- A political party is **an organized group of citizens who hold common views on governance and act as a political unit that seeks to obtain** control of government with a view to further the agenda and policy they profess.

Role of Political Party

- They are **indispensable links between the people and the representative machinery of government.**
- Political parties **maintain a continuous connection between the people and those who represent them either in government or** in the opposition.

Status of Political Parties

- Political parties in India are extra-constitutional, but they are the breathing air of the political system.
- Section 29A(5) of the Representation of the People Act, 1951 is the only major statutory provision dealing with political parties in India.
- It orders that a political party shall bear true faith and allegiance
  o to the Constitution of India as by law established
  o to the principles of socialism, secularism and democracy,
  o would uphold the sovereignty, unity and integrity of India.

Issues with political Parties in India

- Most of **the parties are openly caste- or religious**-based.
- Their **finances are dubious and opaque**.
- Almost all the parties — the Rashtriya Janata Dal, the Samajwadi Party, the All India Majlis-e-Ittehadul Muslimeen, the Indian Union Muslim League, etc. — **are family fiefdoms.**
- The Congress high **command is only a euphemism for the Gandhi family**.

- There are no periodical in-party elections in Indian parties except in a few like the CPI(M).

Germany Model

- The **Basic Law of the Federal Republic of Germany (1949) gives constitutional status to political parties**.
- Political **parties shall participate in the formation of the political will of the** people.
- Their internal organization must conform to democratic principles.
- They must publicly account for their assets and for the sources and use of their funds.
- They shouldn't seek to undermine or abolish the free democratic basic order.

Way Forward

- It is high time to **constitutionalize political parties to ensure in-party democracy, to impart transparency in their finances**, and to de-communalise them.
- The German model of constitutionalizing political parties is more desirable for India than the U.S. and the U.K. models.

Criteria for National Parties

- A party should win 2% of seats in the Lok Sabha from at least three different states.
- At a general election to Lok Sabha or Legislative Assembly, the party polls 6% of votes in any four or more states and in addition it wins four Lok Sabha seats.
- A party gets recognition as a state party in four states.

Criteria for State Parties

A party has to fulfill any of the following conditions for recognition as a state party:

- A party should secure at least 6% of valid votes polled in an election to the state legislative assembly and win at least 2 seats in that state assembly.
- A party should secure at least 6% of valid votes polled in an election to Lok Sabha and win at least 1 seat in Lok Sabha.
- A party should win minimum three percent of the total number of seats or a minimum of three seats in the Legislative Assembly, which ever is higher.
- A party should win at least one seat in the Lok Sabha for every 25 seats or any fraction thereof allotted to that State.
- Under the liberalized criteria, one more clause that it will be eligible for recognition as state party if it secures 8% or more of the total valid votes polled in the state.

WAR ON DRUGS

GS-II GOVERNANCE

Context
- From Rhea Chakraborty to now Shah Rukh Khan's son Aryan Khan, the Narcotics Control **Bureau's Bollywood encounter has been a potboiler of its own, complete with alleged WhatsApp chat evidence, a cruise party, and** an "international drug network".

About Narcotic Drugs and Psychotropic Substances Act 1985
- The **Narcotic Drugs and Psychotropic Substances Act is an Act of the Parliament of India that prohibits any narcotic drug or psychotropic substance** from being produced/cultivated, owned, sold, purchased, transported, processed, and/or consumed by a person.
- **Narcotic drugs include coca leaf, cannabis (hemp), opium, and poppy straw, as per the NDPS Act.**
- A psychotropic drug includes any natural or synthetic material or any salt or **preparation protected by the Psychotropic Substances Convention of 1971.**
- Strict arrangements have been made for the monitoring and regulation of operations relating to narcotic drugs and psychotropic substances under the NDPS Act.
- The minimum sentence for dealing with drugs, as per the NDPS Act, is 10 years of rigorous imprisonment coupled with a Rs. 1 lakh fine.
- **For all individuals booked under this act, no bail is issued**.
- Also, **no relief can be sought by the drug convicts by termination**, remission, and commutation of sentences passed.
- The **NDPS Act prescribes capital punishment for repeated drug trafficking** offenders.
- **All the offences under NDPS Act are non-bailable**.
- It has been **amended thrice — in 1989, 2001, and 2014. The 1989 amendment, among other things**, added a provision introducing the death penalty for repeat offenders.
- The **bail provision under NDPS requires the court to have "reasonable grounds" to believe that the accused** is not guilty and that he is unlikely to commit another offence while on bail.

Criticism of the act
- NDPS is **considered as one of the harshest laws in the** country.
- As per the NDPS Act, the **minimum sentence for dealing with drugs is 10 years rigorous imprisonment coupled with a fine of Rs. 1 lakh**. On the other hand, the punishment for heinous crimes like rape and human trafficking is only 7 years imprisonment.
- **No bail is granted for those persons booked under this act**. In addition, no relief can be obtained by the drug convicts through suspension, remission and commutation of sentences passed.
- Even worse, **NDPS Act prescribes capital punishment for repeat offenders of drug trafficking even though the offence cannot** be called as a heinous crime. It is felt that **death penalty is too harsh for the crimes of this nature**. However, government defends death penalty by saying that even International Narcotics Control Board (INCB) has never objected to the death penalty offered to the drug convicts.
- In many **cases indiscriminate raids are conducted to book offenders'** especially street users.
- A substance named buprenorphine **was used to treat opiate dependence. But once Punjab police raided a clinic and charged the psychiatrist under the NDPS** Act, the treatment was stopped in all the other clinics and now the patients have no other option than to cure themselves and are forced to use illegal and riskier drugs.

About Narcotics Control Bureau
- NCB is the **nodal drug law enforcement and intelligence agency of India** responsible for fighting drug trafficking and the abuse of illegal substances.
- It functions under Union Ministry of Home Affairs (MHA).
- It is **Headquartered in New Delhi.**
- It was **established in March 1986 to enable full implementation of Narcotic Drugs and Psychotropic Substances Act**, 1985 and fight its violation through Prevention of Illicit Trafficking in Narcotic Drugs and Psychotropic Substances Act, 1988.
- Its **mandate is to fight drug trafficking on an all-India level**.
- It works in close cooperation with Customs and Central Excise, State Police Department, Central Bureau of Investigation (CBI), Central Economic Intelligence Bureau (CEIB) and other Indian intelligence and law enforcement agencies both at the national and states level.
- It also provides resources and training to personnel of India's law enforcement agencies in fighting drug trafficking. It also monitors India's frontiers to track down points where smuggling activities take place with foreign traffickers.

Way Forward

- Law Commission which is presently reviewing criminal justice and sentencing should make note of the excesses and **harsh punishments that NDPS Act provides and make appropriate recommendations to abolish disproportionate penalties like capital punishment.**
- **Enforcement agencies need to be sensitized and people who** use drugs to access evidence-based treatment services should not be slapped with imprisonment and criminal prosecution.
- The **use of narcotic and psychotropic medicines should be widened if its effectiveness is scientifically proven** along with safeguards against illicit diversion.
- Government should consult psychiatrists, civil society organizations, academics and patients while issuing drug policy formulations.
- India is a country with long history cannabis and opium use. Instead of trying to create a drug free society, government should apply harm reduction principles to drug policy formulation.

CADRE BASED CIVIL SERVICES   *GS-II GOVERNANCE*

Context

- According to Supreme Court, successful IAS aspirants have no right to be allocated to a cadre of their choice.

About Cadre Based Civil Service

- Cadre literally means a small group of trained people who form basic unit of a military, political or business organization.
- In All India Services, once selected, candidates are assigned cadres based on their preferences, merit and availability of positions.
- In India, each state is a cadre with some exceptions like AGMUT and DANICS. These are joint state cadres with multiple states.

Issue with Cadre Based Civil Service

- Civil Services in India has been constitutionally designed in way that it maintains all India character and 'outsiders' are posted in state cadre.
- 'Outsiders' to state cadre would ensure a higher level of objectivity and neutrality in a system which was likely to face enormous regional and local pressure. But in the 1980s and 90s, partisanship, local considerations and nepotism crept into the system.
- **Permanency of cadres:** It results in inefficiency and ineffectiveness in the working of civil services. It diminishes the all India character and limits the officers' concern to local issues.
- **Provincialization**: According to 'Public Institutions in India- Performance and Design by Mehta and Kapoor' there is a feeling that IAS officers are 'all India' in name only. As the proportions of officers who genuinely alternate between state and central government has declined.
- **Adoption of best practices**: Provincialization of civil services reduces capacity of the civil services to adopt and disseminate good practices of other cadres.
- **Collusion with local politicians**: For the want of want of better position they collude with local politicians.
- Large variation: There are large variations in the size of IAS cadres with respect to total state populations. As a result, the IAS cadre in UP is 40 % smaller than it should be while in Sikkim it is 15 % more than it should be, based on population alone.
- **Central Deputation:** According to 'Public Institutions in IndiaPerformance and Design by Mehta and Kapoor' many small states have much better representation in central ministries and departments than their larger peers.
- **Reluctance to 'de-cadre' positions**: Due to changing social and economic conditions some posts diminished in importance. But they were rarely 'de-cad red'. For ex - In many states, the post of Land Settlement Officer is still encadred, decades after overwhelming majority of land tenure/land revenue settlement work was completed.

Way Forward

- The New Cadre policy (2017) looks to resolve these issues. The new policy is aimed at ensuring 'national integration' in the country's top bureaucracy
- The new policy will seek to ensure that officers from Bihar, for instance, will get to work in southern and north- eastern states, which may not be their preferred cadres.
- All India Services officers are supposed to have varied experience which can be earned if they work in different states. It will also give them knowledge of best practices.
- Lateral Entry: Also the recent move by the government to directly recruit experts for specialized position is a welcome move and in accordance with the recommendation of 2nd ARC.
- Reduction in size of cadres: The proliferation of inconsequential posts is a proximate cause of both demoralization and the

ability to use transfer as a penalty. Therefore the size of cadres should be reduced after periodic reviews.

About New Cadre Policy

- New Cadre Policy (2017) In the new policy, aimed at "national integration divides the 26 states into 5 zonal cadres.
- Zone-1 - AGMUT, Jammu, and Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Rajasthan, and Haryana
- Zone-11- Uttar Pradesh, Bihar, Jharkhand, and Odisha
- Zone-Ill - Gujarat, Maharashtra, Madhya Pradesh and Chhattisgarh
- Zone-IV- West Bengal, Sikkim, Assam-Meghalaya. Manipur, Tripura
- Zone-V- Telangana. Andhra Pradesh, Karnataka, Tamil Nadu and Kerala
- Candidates have to give cadre choices in descending order of preference from among the various zones. Candidates can only select one state/cadre from a zone as their first choice. Their next choice has to be from a different zone. It is only after selecting first choice in all the zones, one can select the second state/cadre from the first zone. Earlier the candidates used to choose their home state as their first choice and neighboring states as their subsequent preferences Localization mandates that companies collecting critical data about consumers must store and process them within the borders of the country.

NATIONAL SECURITY POLICY   *GS-II   GOVERNANCE*

Context

- It increasingly appears that the cyber warfare is going to 5ecome a regular part of the arsenal of nations.
- The changing military doctrines, all across the world, favour the need to raise cyber commands reflecting a shift in strategies along with building deterrence in cyberspace.

About Cyber Warfare

- It is the use of computer technology to disrupt the activities of a state or organization; deliberately attacking information systems for strategic or military purposes.
- Cyber warfare typically involves the use of illegal exploitation methods on the internet, corruption or disruption of computer network.

Arguments in Favor of Cyber Warfare

- **Tempered by responsible use and appropriate controls**, cyber warfare is a safer and more flexible strategic alternative, one critical step between sanctions and bombs.
- Reducing loss of human lives forms one of the core principles of ethics of war.
- Cyberwars can be seen as an **opportunity to decrease global violence and can shift wars'** focus away from human casualties.
- Fighting digitally offers a unique opportunity; the continuation of Politically by other means, without the phys1cal invasion of a sovereign territory.

Arguments against War Fare

- Cyber warfare **attacks on military infrastructure, government and private communications systems, and financial markets pose a rapidly growing** but little understood threat to international security and could become a decisive weapon in future conflicts among States.
- More Number of Countries to Engage in Wars: Once cyber technology enters as an important variable in nations' defence policies, the size of a country will cease to matter.
- **Even smaller countries empowered by cyber technology** will be equal to the larger countries like the US, Russia, India or China, in their capability to cause unacceptable damage.
- **Lowering Threshold of Entry into War**: Weapons in the 21st century will merely mean a cyber-button on the desk of the nation's military/ the leader of the government.
- **Geographical land, population, or GOP will be irrelevant** in war-making capacity or deterrence.
- **More Frequent Conflicts**: With cyber warfares becoming a norm, each nation will have to be more prepared for bilateral conflicts that are based on cyber warfare rather than in multilateral acts of conventional war.

Threats to India

- India has been the victim of cyber-attacks multiple times in the past
- In 2009, a **suspected cyber espionage network dubbed Ghost Net was found to be targeting, amongst oth**ers, the Tibetan government in exile in India, and many Indian embassies.
- The **power outage in Mumbai in 2020 is also suspected to be the result of an attack by a Chinese state-sponsored** group.
- The real danger to India lies **in targeted cyber-attacks coming from adversarial nation states. Countries like China can bring immense assets to bear in carrying out sophisticated cyber-attacks.**

- India is one of the few countries which still does not have a dedicated cyber component in its military. The setting up of a Defence Cyber Agency was announced but came out only as a typical half-hearted step characterising India's lack of strategic planning process.

Way Forward

- Clarifying the Objectives: The National Security Policy in the 21st century shall define what assets are required to be defended and the identity of opponents who seek to overawe the people of a target nation by unfamiliar moves to cause disorientation of people.
- Setting Priorities: The national security priorities will require new departments for supporting several frontiers of innovation and technologies; hydrogen fuel cells, desalination of seawater, thorium for nuclear technology, anti-computer viruses, and new immunity-creating medicines.
  - This focus on a new priority will require compulsory science and mathematics education.
    - Also, every citizen will have to be made aware of the new remote controlled military technology and be ready for it.
- **Changing the Strategy:** The strategy required for the new national security policy will be to anticipate the enemies in many dimensions and by demonstrative but limited pre-emptive strikes by developing a strategy of deterrence of the enemy.
- For India, it will be China's cyber capability factor which is the new threat for which it has to devise a new strategy.
- **New Agenda:** The agenda for the new strategy will be to focus on; critical & emerging technologies, connectivity & infrastructure, cyber security and maritime security.
- **Role of Policy Makers:** The government should carve out a separate budget for cyber security. Creating a central body of cyber warriors to counter state-sponsored hackers.
- India's talent base in software development should be harnessed by providing career opportunities. Bootstrapping the cyber security capability programme in states through central funding.
- **Defence, Deterrence and Exploitation:** These are the three main components of any national strategy to counter cyber threats. Critical cyber infrastructure must be defended and individual ministries and private companies must also put procedures in place to honestly report breaches.
- **Deterrence in cyberspace is a hugely complex issue**. Nuclear deterrence is successful because there is clarity on the capability of adversaries but cyber warfare lacks any such clarity.
- Exploiting cyberspace to achieve national security objectives. The preparation for this will have to start with the Indian military gathering intelligence, evaluating targets and preparing the specific tools for cyber-attacks.

Conclusion

- Once cyber technology becomes a key variable in the defence policies of a nation, land size or GOP size are irrelevant. Hence, clearer strategy and greater transparency are the need of the hour to improve India's cybersecurity posture.

UNITY IN DIVERSITY
GS-II   SOCIAL JUSTICE

Context
- Recently, Union Minister commented that Oneness is the biggest strength of Indian culture and it was this aspect that made it capable for us to become a 'vishwa guru' or world teacher.

Types of Diversity in India
- **Linguistic diversity:** Languages spoken in India belong to several language families, the major ones being the Indo-Aryan languages spoken by 75% of Indians and the Dravidian languages spoken by 20% of Indians.
- **Racial diversity:** 1931 census classified India's racial diversity in the following groups- The Negrito, The Proto-Australoid, The Mongoloid, The Mediterranean, The Western Brachycephals and the Nordic.
- **Caste diversity:** India is a country of castes. The term caste has been used to refer to both varna as well as jati. Varna is the four-fold division of society according to functional differentiation.
- Cultural Diversity: Different religion, castes, regions follow their own tradition and culture. Thus, there is variation in art, architecture, dance forms, theatre forms, music etc.

Threats to Unity
- **Communalism**: the rising majoritarian tendencies such as call for a 'Hindu rashtra', cow vigilantism, love jihad claims against inter-religion marriages threaten the secular fabric of Indian society
- **Regionalism**: the demands of new states and even secession based on language (gorkhaland, Dravidnaad), religion (khalistan), ethnicity (nagalim) continue to mar the unity and integrity of nation
- **Linguism**: perceived threats to the local language and recent attempts the Fife Hindu on non-willing sections have in the past led to movements like Dravidian movement and can be seen in recent times as well such as Gokhaland and Bodoland movements
- **Casteism**: caste oppression had continued for long time with scant attempts to challenge it until recently. With the opportunities provided by increasing literacy rate and economic reforms and excessive politicisation, caste identities are becoming more pronounced than before. While some use it to challenge the oppression they have faced (Bhima-koregaon), others use it to claim benefits of reservation (Jat, Patidar, Maratha)
- **Racism**: discrimination against people of North-east, people of south in northern states and vice versa threatens a whole section of the society, dissipating discrimination into division
- **Separatist movements**: The ongoing separatist movements in J&K and North-East along with Naxalism have for long and continue to pose significant risks to India's unity.

Source of Unity
- **Institution of pilgrimage**: The Golden Temple in Amritsar, the dargah of Khwaja Moinuddin Chisti in Ajmer, the Sabarimala Temple in Kerala and the Church of Mother Velankanni in Tamil Nadu is visited by people of all faiths.
- **Democracy**: The value of democracy among Indians was instilled during the freedom struggle.
- **Economic and Social Opportunities**: Urban centres across the country like New Delhi, Gurugram, Mumbai, Hyderabad, Bengaluru and Chennai amongst others provide upward mobility for a large number of people.
- **Government services**: The All India Services, Central Services and the Armed Forces enable people from across the nation to work in different parts of the country. They work to further the national interests of the country.
- **Sports and Cinema**: It is a well-known fact that Sports unites everyone. When sportspersons don the Indian jersey, they play for India and are cheered by all Indians, not only in India but also abroad.
- **Value system:** Mahatma Gandhi supported non-violence with all his heart. In all of the marches and protests there were people of many different races and cultures and dialects. This has created an alloy where the qualities of each element remain distinct yet at the same time strengthen the qualities of the other thereby making a durable product.

ADMINISTRATING 100 CRORE VACCINES
GS-II   SOCIAL JUSTICE

Context
- Administering **100 crore vaccine doses in less than 10 months** is a remarkable achievement for a country as vast and diverse as ours.
- Today, four vaccines are manufactured in India — **Bharat biotech's Covaxin, Serum Institute's Covishield, Cadila Zydus ZycovD vaccine and Russian**-developed Sputnik V.

Means to do so

- It has been **made possible by the concerted efforts of scientists, entrepreneurs, industry leaders, administrators** and government.
- In **March 2020, as soon as the pandemic struck the world**, India invested huge funds to create an ecosystem that encouraged scientists as well as entrepreneurs to collaborate and take up the challenge of developing vaccines in such a short time.
- M**ajor investments were made in high-risk projects, collaboration between academia and industry** was proactively encouraged and infrastructure to support vaccine development was bolstered.

Ensuring safety of Vaccines

- By September-October last year, India had set up an expert panel including general physicians, **pulmonologists, cardiologists, neurologists, hepatologists and other specialists to monitor Adverse Events Following Immunisation (AEFI)** at the national level.
- **Any clinical event or disease that occurs within 28 days of administering a dose** of the vaccine is to be reported as AEFI. Unfortunately, the system is only able to capture events occurring in the first four-five days after the vaccine is administered.
- **Routine AEFI surveillance, though, has improved and active surveillance systems have been set up at 20 to 25 sites across** the country, both at hospitals as well as community sites. This is helping the system to rule out the possibility of long-term effects of the vaccines.
- At every vaccination centre, a waiting area was set up where people can be observed for 30 minutes post-vaccination. The objective was to manage any severe reaction promptly and refer them to the nearest health facility.

Means to tackle vaccine hesitancy

- But the **country's experience during the long campaign for polio eradication** came in handy while dealing with misinformation around Covid-19 vaccines.
- **Communication experts were roped in to draft social mobilisation** programmes in October last year. Iconic personalities, religious leaders, community leaders were also involved in awareness programmes.
- **Social media was scanned systematically** so that rumours and misinformation could be countered methodically.
- **India's vaccination campaign has been a well-coordinated operation** involving several departments other than the health departments.

Ensuring Availability of Vaccines

- All-out efforts were made to develop indigenous vaccines and manufacture locally under an international licence.
- Attempts were also made to arrive at advance arrangements with international vaccine manufacturers in late 2020.

Way Forward

- But the **fact is that there is still a long road to effectively control Covid**. A substantial number of adults, and all children, are yet to be vaccinated.
- The last mile could be a difficult road as we may come across pockets of vaccine hesitancy but concerted efforts to address contextual factors will help the country achieve full immunisation.

MGNREGA   GS-II SOCIAL JUSTICE

Context

- Many states are **running out of funds to continue timely payments under MGNREGA.**
- According to its own financial statement, the **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme shows** a negative net balance of Rs 8,686 crores.
- Close **to 21 out of 35 states and UTs have already utilised over 100% of the allocated funds under MGNREGA** for the financial year 2022 till October 29, 2021.
- Key states are showing a negative net balance with Andhra Pradesh, Tamil Nadu, and West Bengal faring the worst. Andhra Pradesh and Tamil Nadu had a negative balance of Rs 2,323 crores and Rs 1,999 crores respectively.

Reasons for lack of budget

- **Scheme's 2021-22 budget was set at ₹73,000 crores** with the option of supplementary allocations in case of any insufficiency.
- State governments **have used it as supply led scheme rather than demand driven** scheme.
- It will lead to delay in payment of wages as well material cost.
- It will increase the distress on marginalized section and poor.

About MGNREGA

- The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) has the following objectives:
  - o **Provide 100 days of guaranteed wage employment** to rural unskilled labour
  - o **Increase economic security**
  - o **Decrease migration of labour** from rural to urban areas
  - o **Grassroots-driven approach to employme**nt generation.
  - o Programmes under the act are demand driven.
  - o The scheme is **funded by the central government, which bears the full cost of unskilled labour and 75% of the** cost of material for works undertaken under this law.
  - o The central and **state governments audit the works undertaken under this act through annual reports prepared by CEGC** (Central Employment Guarantee Council) and the SEGC (State Employment Guarantee Councils).
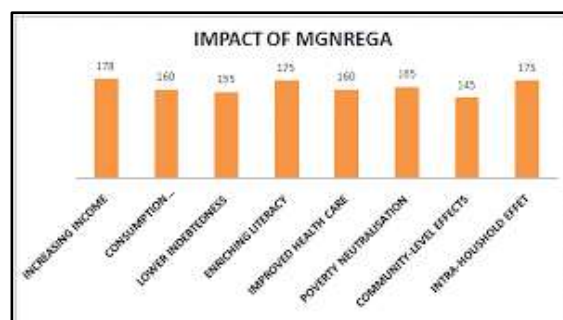
Success of MGNREGA

- **Reduced the distress in agriculture & economy** due low agricultural productivity & small land-holding size thus provided them better livelihood opportunities.
- **Most of MGREGA work is directed towards** building irrigation canals, tanks etc. thus provides resources base for further rural development.
- It has **reduced rural distress & intensive urban migration**.
- The provisions **like work up to 5 km from home, equal wages promotes women** empowerment, gender parity & directed towards backward section of society.
- The programme has **generated over 1,980 crore person-days. In the** short span of 10 years that the Act has been in existence, it has **generated 19.86 billion person-days of employment benefitting 276 million workers**, with more than half the jobs going to women workers and almost a 3rd to members of scheduled castes and scheduled tribes.
- It has **resulted into social upliftment for all sections including SC/ST**. The percentage of Scheduled Caste workers benefitted under the scheme has consistently been about 20% and of Scheduled Tribe workers has been about 17%.
- The **legislation has reduced distress migration in traditionally migration**-intensive areas.
- MGNREGA has played a much larger role in revitalizing the labour market in rural areas. Not only has it led to the creation of a class of workers who are using the MGNREGA as a safety net, but also these workers are also able to use it as a bargaining tool for extraction of higher wages.

Challenges

- **Ridiculously low wage rate:** Currently, MGNREGA wage rates of 17 states are less than the corresponding state minimum wages.
- **Insufficient budget allocation:** MGNREGA's success at the ground level is subject to proper and uninterrupted fund flow to the states.
- **Regular payment delays:** The Union Ministry of Rural Development considers wages paid once the FTO (Fund Transfer Order) is signed by the second signatory. However, delays take place even in the processing of signed FTOs, for which the Management Information System (MIS) does not calculate compensation.
- **Workers penalised for administrative lapses**: The ministry withholds wage payments for workers of states that do not meet administrative requirements within the stipulated time period
- **The banking puzzle:** The rural banks are highly de-capacitated in terms of staff and infrastructure and thus always remain hugely crowded. The workers normally have to visit the banks more than once to withdraw their wages.
- **Faulty MIS data**: The increase in corruption and weakening accountability has roots in the excessive dependence of implementation of MGNREGA on technology (real-time MIS being one of them). There is a growing pile of evidence on how real-time MIS has made MGNREGA less transparent for workers, reduced accountability of frontline functionaries and aided in centralisation of the programme.
- **Non-payment of unemployment allowance**: There are a huge number of unemployment allowances being shown in the MIS currently.
- **Genuine job cards being deleted to meet 100% DBT targets:** Genuine job cards are being randomly deleted, as there is a huge administrative pressure to meet 100 per cent Direct Benefit Transfer (DBT) implementation targets in MGNREGA.
- **Too much centralization weakening local governance:** A real-time MIS-based implementation and a centralized payment system has further left the representatives of the Panchayats Raj Institutions with literally no role in implementation, monitoring and grievance redress of MGNREGA schemes.
- **Administration not honoring local priorities:** MGNREGA could be a tool to establish decentralized governance. However,

with the administration almost dictating its implementation, it is literally a burden now for the people and especially for the local elected representatives.

Government Reforms

- **Geo MGNREGA** is a path breaking initiative that uses space technology for geo-tagging all assets created under MGNREGA for improved planning, effective monitoring, enhanced visibility and greater transparency.
- **Direct benefit transfer:** To further streamline the fund flow mechanism and bring down delay in payment of wages, the Ministry of Rural Development has implemented National Electronic Fund Management System (NeFMS) in 21 States and 1 Union Territory.
- Initiative has been taken to simplify MGNREGA through issuance of Annual Master Circular (AMC) for FY 2016-17 by superseding 1039 circulars/advisories issued earlier.
- Reduction in number of Registers being maintained at Gram Panchayat level to seven simplified Registers from an average of 22 Registers has been implemented.
- The programme is progressing towards a more independent and empowered system of Social Audit and Internal Audit to ensure growth with accountability through a trained community cadre of social auditors drawn from women SHGs.
- The Ministry has taken up skill development of the MGNREGA workers through initiatives like Bare Foot Technicians and Project LIFE (Livelihood in Full Employment) in order to move them up the skilling ladder.
- The Ministry initiated Inter State Exchange Programmes, a process ensuring sharing of ideas and good practices.

SAME SEX LAW   *GS-II SOCIAL JUSTICE*

Context

- A recent advisory from the National Medical Commission (NMC) emphasizing the need to avoid derogatory references to the LGBTQIA+ community in medical textbooks or teaching methods has underscored the value of institutional awareness on issues concerning queer and trans people.

Figure 1: Supreme Court Verdict on Section 377

Arguments in favor of same sex

- **"Homosexuality" is unnatural therefore homosexuals** ought not to be permitted to enter the natural institution of marriage.
- **Marriage is unique in the sense that it was created by God for the procreation** and raising of children by a mother and father. Homosexual can't procreate.
- **Same-sex marriage ruins the sanctity of marriage**.
- The right to marry **is fundamental but the right to marry someone of the same sex is not. Before a fundamental right can** be recognized, a "deeply rooted tradition" must be found. Homosexuality is not a deeply rooted tradition.
- The **legislature, not the courts should decide how to make profound social changes**.
- Marriage is **to encourage stable relationships because people in them are more likely to contribute to a stable society**.
- Legalizing same-sex marriage could lead to the acceptance of polygamy and incest.
- **Indian law authorises marriages only between men and women**.

Counter Arguments

- Homosexuality, or what is called homosexuality, **demonstrably exists in nature, and whatever exists in nature is natural.** We humans exist in nature, homosexuality is therefore not unnatural.
- The traditional family structure already in many cases subject to family violence, divorce, substance abuse, etc.
- Not **allowing same-sex marriage penalize children by depriving them of state benefits because the state disapproves** of their parents' sexual orientation? Research shows that children adopted by gay parents thrive as well as other children.
- Why are **people who are unable to reproduce allowed to marry**? Why aren't marriages that fail to generate offspring cancelled after a set time?
- same-sex marriage may ruin the religious standard of marriage. However, the fact of the matter is that homosexuals want marriage in the purely legal form and religions do not have to approve of this.
- **Courts have recognized that rights can be fundamental even if** they were traditionally considered immoral or even criminal, as long as they have become "implicit in the concept of ordered liberty".
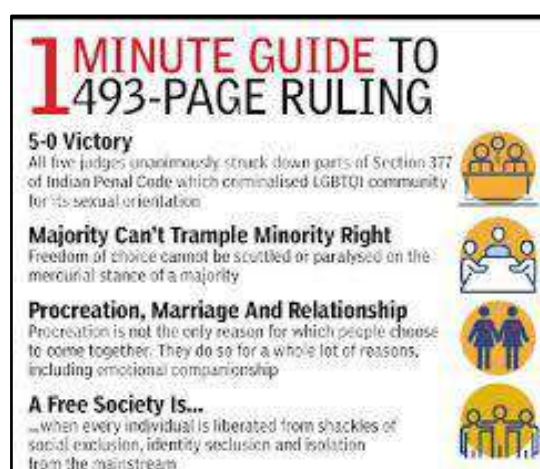
Section 377

- Section **377 refers to 'unnatural offences' and says whoever voluntarily has carnal intercourse against the order of nature with any man**, woman or animal, shall be punished with imprisonment for life, or with imprisonment of either description for a term which may extend to 10 years, and shall also be liable to pay a fine.

Way Forward

- Society is continuously moving forward. Supreme court has already struck down section 377 of Indian Penal Code thus recognizing the homosexuality.
- **Courts and legislatures have to work together. Same-sex couples** deserve a full range of marriage options.
- Every constitution allows for the realization of the full potential of an individual. Allowing same-sex marriage will provide dignity to the people.

WOMEN RESERVATION BILL   *GS-II   SOCIAL JUSTICE*

Context

- Congress announced that 40% of the candidates fielded by the party for the 2022 Uttar Pradesh Assembly election would be women.

Data on Women Representation

- As for India, the **Lok Sabha has 14.4 per cent of members who are women while the proportion in Rajya Sabha is 11.2 per** cent.
- reservation for women in the Parliament has been a stated objective of all major political parties.
- **The BJP and Congress both had in their manifestos for the 2019 Lok Sabha polls said they would push for 33 per cent reservation of seats** in the Lok Sabha and state assemblies for women.
- In 2020, the World Economic Forum listed India at 122 out of 153 countries when it comes to women's representation in parliament, in their Global Gender Gap Report.

Evolution of Women Representation

- The first of the **women's reservation Bills to lose their way in the Parliament was introduced 25 years back in 199**6.
- The last, introduced in 2008 in Rajya Sabha, was passed by the Upper House in 2010 but then lapsed at the conclusion of the 15th Lok Sabha after the Lower House sat on it for four years.
- The report examining the 1996 women's reservation Bill recommended that reservation be provided for women of Other Backward Classes (OBCs) once the Constitution was amended to allow for reservation for OBCs.
- It also **recommended that reservation be extended to the Rajya Sabha and the Legislative Council**s.

Challenges to the Bill

- It would **perpetuate the unequal status of women since they would not be perceived to be competing on merit.**
- such **reservation would restrict voters' choices**
- It would "**reduce the incentive for an MP to work for his constituency as he may be ineligible to seek re-election from that constituency**" if the reservations followed a policy of rotation and his seat was to be reserved for women in the next polls.
- Pakistan **which has 17% seats reserved for the women, It has been found that reservation has led to political parties giving fewer tickets to women to contest from general seats, thus actually hampering the cause of women's empowerment.**
- Some studies show using gender quotas to increase women's electoral representation may not be the most effective way to empower women and improve democracy.
- This policy diverts attention from the larger issues of electoral reform such as criminalisation of politics and inner party democracy.

Need for Women Reservation

- A **study on local-level reservation for women in India found that more women participated in village council meetings when the chair was a woman** and that policies were also more reflective of their concerns.
- Village **councils with reserved female leaders invested more in drinking water infrastructure, sanitation, roads, school repair, health centre repair**, and irrigation facilities.
- Some of the **most economically advanced countries like USA grapple with skewed gender ratio in Parliament. It does not reach global gender average of 24% of lower** house seats by women. On the other hand in **Rwanda** around two third of its seats are held by women, it is the highest female representation in parliament. Countries like **Bolivia and Cub**a also have more women in parliament than men. This shows that level of economic development does not necessarily promise women a place in legislatures as some advanced societies too can be plagued by gender bias and political unwillingness.

International Scenario

- According to the Inter-Parliamentary Union, **women make up at least 50 per cent of the total membership of the lower chamber of national assemblies in only three countries** in the world, led by Rwanda.
- France, South Korea and Nepal have passed laws mandating parties to reserve as much as 50 per cent of all tickets for women.
- South Africa has managed to ensure a high level of women's representation in the national assembly through voluntary adoption of quota by just one party.

Way Forward

- In almost all political systems, no matter what electoral regime, it is the political parties, not the voters that constitute the real gatekeeper to elected offices.
- Fundamental reforms at the party level will serve as a necessary and strategic compliment to the Women's Reservation Bill.
- Even if the bill is derailed further, it should not stop political parties from making internal structures more conducive to women entering politics.
- These measures will ensure that the passing of the bill does not translate to mere tokenism and results in true empowerment of the Indian women.

MTP ACT RULES

GS-II SOCIAL JUSTICE

Context

- The government has notified the **new Medical Termination of Pregnancy (Amendment) Rules, 2021 which spell out the situations that define eligibility criteria** for termination of pregnancy up to twenty-four weeks as against the previous upper limit of 20 weeks.

About the Amendment in the act

- The act allows **abortion to be done on the advice of one doctor up to 20 weeks, and two doctors in the case of certain categories** of women between 20 and 24 weeks.
- The act sets **up state level Medical Boards to decide if a pregnancy may be terminated after 24 weeks in cases of substantial foetal** abnormalities.

Key Issues with the Bill

- There are differing **opinions with regard to allowing abortions. One opinion is that terminating a pregnancy is the choice of the pregnant woman**, and a part of her reproductive rights. The other is that the state has an obligation to protect life, and hence should provide for the protection of the foetus.
- The Bill **allows abortion after 24 weeks only in cases where a Medical Board diagnoses substantial foetal abnormalities.** This implies that for a case requiring abortion due to rape, that exceeds 24-weeks, the only recourse remains through a Writ Petition.
- The Bill **does not specify the categories of women who may terminate pregnancies between 20-24 weeks and leaves it to be prescribed** through Rules.
- The Act (and the Bill**) require abortion to be performed only by doctors with specialisation in gynaecology or obstetrics**. As there is a 75% shortage of such doctors in community health centers in rural areas, pregnant women may continue to find it difficult to access facilities for safe abortions.
- The Bill **does not provide a time frame within which the Board must make its decision. Term**ination of pregnancies is a time sensitive matter, and delays in decision-making by the Medical Board may result in further complications for the pregnant woman.

Philosophy behind the MTP Act

- It divides the whole pregnancy period into three phases.
- **Phase 1 is up to 12 weeks where abortion can be sought with the advice of a single medical practitioner**. The reason of abortions lies to threat to life for mother as well for child.

Time since conception	Requirement for terminating pregnancy	
	MTP Act , 1971	**MTP (Amendment) Bill, 2020**
Up to 12 weeks	Advice of one doctor	Advice of one doctor
12 to 20 weeks	Advice of two doctors	Advice of one doctor
20 to 24 weeks	Not allowed	Two doctors for some categories of pregnant women
More than 24 weeks	Not allowed	Medical Board in case of substantial foetal abnormality
Any time during the pregnancy	One doctor, if immediately necessary to save pregnant woman's life	

- **Phase 2 is from 12 to 20 week where abortion can be sought with the advice of two medical practitioners.** The reason of abortions lies to threat to life for mother as well for child.
- **Beyond 20 weeks, termination** may be carried out where it is necessary to save the life of the pregnant woman.
- **This act also includes grave incidences like pregnancy** arising out of rape or pregnancy arising out of the failure of contraceptives.

Supreme Court verdicts on MTP Act

- The Supreme Court has recognised women's right to make reproductive choices and their decision to abort as a dimension of their personal liberty (in Mrs. X v. Union of India, 2017)
- It has recognized right of women for undertaking reproductive choices falling within the realm of the fundamental right to privacy (in K.S. Puttaswamy v. Union of India, 2017).

POCSO ACT

GS-II SOCIAL JUSTICE

Context

- According to rough estimates, around 250 men, 90 per cent of whom belong to various tribal communities, have been charged under section 3 of the POCSO Act in the last nine years in Wayanad for impregnating their minor wives, underlined Rajesh.

Provision of POSCO Act

- The POCSO Act was **enacted in 2012 and is gender neutral —** it recognizes that boys can be victims of sexual violence as well.
- It defines a child as someone under the age of 18.
- It also specifically **lays down stringent punishment for exposing children to**, or using them to create child sexual abuse material.
- The law **lays down the procedures for reporting sexual crimes** against children.
- It places t**he burden of proof on the accused, following 'guilty until proven innocent' unlike the IPC**.

Data on Child Abuse

- Half of the country's children face some form of sexual abuse with 18.3 percent were physically abused and 8.6 percent were sexually abused in 2017.
- A national estimate of 1,720 children died from abuse and neglect in fiscal year 2017 compared to 1,750 children who died in fiscal year 2016.

Challenges with the Act

- <u>Lack of complaint</u>: Most of the victims experience the terrific social humiliation and feelings of shame and guilt when they report that they are sexually assaulted. It either delays or leave out a no of victims.
- <u>Lack of awareness</u>: Parents or guardians often do not have the knowledge to safeguard their children either by educating the children about sexual abuse or by being watchful in order to prevent abuse on their children.
- <u>Poor rate of conviction</u>: POSCO act is plagued by low rate of conviction. It was 14% in 2014 and 18% in 2018.
- **Many states have not complied with the provisions of the act** as they have not established the special children courts.
- The **act doesn't cover all aspects of the crime against the children**. It doesn't cover cyber bullying and other types of online crime against children.
- **Ineffective training of the public prosecutors** have often led to acquittal of the perpetrator.

Way Forward

- More awareness need to be generated in order to make more children come forward for their child abuse.
- Proper training of police, forensic staff and public prosecutors need to be put in place for enhancement of the conviction rate.
- The introduction of sex education in schools and educating the children about good touch and bad touch is significant. In 2008-09 Parliamentary committee report mentions the introduction of sex education, but it never materialized. It has to be implemented.
- The Supreme Court issued a direction to set up special courts within 60 days on the districts that are having more than 100 pending POCSO cases. This has to be implemented urgently.

Difference between Section 8 of the POCSO Act and Section 354 of IPC

Section 8 of the POCSO Act	Section 354 of IPC
This section is gender-neutral	This section is only for women and not for male or transgender child
Punishment can be a minimum sentence of 3 years and may extend to the maximum sentence of 5 years	Punishment shall not be less than one year but it may extend to five years

SWACHH BHARAT MISSION-URBAN

GS-II   SOCIAL JUSTICE

Context

- Second phase of Swachh Bharat Mission-Urban (SBM-U) has announced the second phase of Swachh Bharat and the Atal Mission for Rejuvenation and Urban rat Mission-Urban (SBM-U)and the Atal Mission for Re- Transformation (AMRUT).

Comment on the Exerise

- Raising community involvement in resource recovery, which the rules governing municipal, plastic and electronic waste provide for, calls for a partnership that gives a tangible incentive to households.
- The current model of issuing mega contracts to big corporations — as opposed to decentralized community-level operations for instance — has left segregation of waste at source a non-starter.
- In the absence of a scaling up of operations, which can provide large-scale employment, and creation of matching facilities for material recovery, SBM-U 2.0 cannot keep pace with the tide of waste in a growing economy.
- On sanitation, the impressive claim of exceeding the targets for household, community and public toilets thus far obscures the reality that without water connections, many of them are unusable, and in public places, left in decrepitude.
- it is a long road to Open Defecation Free plus (ODF+) status for urban India, since that requires no recorded case of open defecation and for all public toilets to be maintained and functioning.
- Equally, the high ambition of achieving 100% tap water supply in about 4,700 urban local bodies and sewerage and septage in 500 AMRUT cities depends crucially on making at least good public rental housing accessible to millions of people.

Swachh Bharat Mission Grameen Phase-II

- About: It emphasizes the sustainability of achievements under phaseI and to provide adequate facilities for Solid/Liquid & plastic Waste Management (SLWM) in rural India.
- Implementation: SBM (G) Phase-ll will be implemented from 2020-21 to 2024-25 ina mission mode with a total outlay of Rs. 1,40,881 crores.
- Funding Pattern and Norms: The fund sharing pattern between Centre and States will be 90:10 for North-Eastern States and Himalayan States and UT of J&K; 60:40 for other States; and 100% for other Union Territories.
- Funding Norms for SLWM have been rationalized and changed to per capita basis in place of the number of households.
- Monitoring: The SLWM component of ODF Plus will be monitored on the basis of output – outcome indicators for 4 key areas:
  o   Plastic waste management,
  o   Biodegradable solid waste management (including animal waste management),
  o   Greywater (Household Wastewater) management
  o   Fecal sludge management.

AMRUT 2.0 mission

- It will help in making cities self- reliant.
- It will ensure water security across the cities.
- This mission has been launched with the aim of providing 100 percent coverage of water supply to all households in 4,000 urban local bodies.
- This target will be achieved by providing 2.68 crore tap connections and 100% coverage of sewerage across 500 AMRUT cities. An outlay of Rs 2.87 lakh crore has been sanctioned for this mission.

SBM-U 2.0 mission

- It seeks to make all cities 'Garbage Free'.
- It also seeks to ensure grey and black water management across the cities that are not covered under AMRUT.
- Mission will focus on source segregation of solid waste by utilizing the principles of 3Rs that is "Reduce, reuse, recycle".
- An outlay of Rs 1.4] lakh crore has been sanctioned for SBM-U 2A.

Impact of these two schemes

- SBM-U and AMRUT have contributed significantly to improve urban landscape during the last seven years.
- The two flagship Missions have augmented the Capacity to deliver basic services of water supply and Sanitation to the citizens.
- Swachhta has become a Jan Andolan today.
- All urban local bodies have been declared Open Defecation Free (ODF) and 70% solid waste is being scientifically processed now.
- AMRUT has been ensuring water security by adding 1.1 crore household water tap connections and 85 lakh sewer.

FOREST CONSERVATION ACT   GS-II SOCIAL JUSTICE

Context

- The Union Government has proposed absolving agencies involved in national security projects and border infrastructure projects from obtaining prior forest clearance from the Centre as part of amendments to the existing Forest Conservation Act (FCA).

Background

- The FCA is the principal legislation that regulates deforestation in the country.
- It prohibits the felling of forests for any "non-forestry" use without prior clearance by the central government.
- The clearance process includes seeking consent from local forest rights-holders and from wildlife authorities.
- The Centre is empowered to reject such requests or allow it with legally binding conditions.
- In a landmark decision in 1996, the Supreme Court had expanded the coverage of FCA to all areas that satisfied the dictionary definition of a forest; earlier, only lands specifically notified as forests were protected by the enforcement of the FCA.

Concessions and explorations

Exemptions to Railways and roads inside forests

- **Land acquired by the railways for establishing a rail line or a road by a government agency before 25.10.1980** (the day the FCA was passed) would be exempted from seeking a forest clearance if they put the land to the same use for which it was acquired.
- This is **included in a provision in the proposed section**.
- The **exemption is subject to terms and conditions that the central government will lay down through guidelines**, which include planting trees to compensate for the loss of forests.
- FCA **requires the central government's approval before assigning forest lands on lease to any private person / corporation /** organization not **owned** or controlled by the central government.
- This **clause, however, has purportedly been deleted in the proposed amendment**.
- This may mean that state governments can issue leases for the use of forest land without the Centre's prior approval.

Exemptions to plantations

- A new **explanation to Section 2 proposes to exempt plantation of native species of palm and oil-bearing trees from** the definition of "non-forest purpose".
- Since the **FCA applies to conversion of forest land to "non-forest purpose", this proposed amendment would effectively mean that anyone who wants to clear a natural forest to raise such plantations would not require any** approval from the government.
- The government **will only impose conditions for compensatory afforestation and payment of other levies and compensations**.
- Another explanation to Section 2, according to the documents acquired, says that tree plantations or afforestation project would be exempted from the Act altogether if they come up on lands that are not notified under the Indian Forest Act, not identified by state expert committees as forests, or are described as forests in government records before 1980 and were so "till 31.12.2020."

Exemptions to wildlife tourism, training infrastructure

- The FCA classifies activities related to wildlife conservation as "non-forestry" purposes, which means such activities — building checkposts, communication infrastructure, fencing, boundary, etc. — which do not need a forest clearance.
- The proposed amendment claims to add to this list "forest and wildlife training infrastructure" and the "establishment of zoos and safaris" managed by the government or any authority under the Wildlife Protection Act, 1972.
- It may also add ecotourism facilities approved under the Forest Working Plan or Working Scheme approved by the central government.
- States may grant forest clearance for strategic / security projects
- The proposed Section 2A may empower the central government to provide for state government approval for projects on

forest land for "strategic" or security projects of "national importance", according to the documents accessed.

- There is no clarity on the scope of these terms, or on the determination of national importance, or illustrative examples of such projects.
- The Supreme Court in T.N. Godavarman Thirumulpad v. Union Of India & Ors. (Godavarman) on December 12, 1996 had held that the meaning of "forest" under the FCA would include not only statutorily recognised forests; it would include any area recorded as forest in government records, regardless of ownership.
- The restrictions in the FCA would, therefore, be applicable to both de jure and de facto forests.

The amendment of FCA purportedly seeks to reduce the scope of this judgment by limiting the applicability of the FCA to only such land that has been:

- Declared or notified as forest under the Indian Forest Act, 1927
- Recorded as forest land in the government record prior to 25 October 1980, with the exception of such land if its use has been changed from forest to non-forest purpose prior to 12 December 1996
- Identified as "forest" by a state government expert committee up to one year from the date of the amendment.

Developments in ambit of Forests Act

- The proposed amendment inserts a new Section 2B, which will allow the central government to delineate forest areas where conversion to specific non-forest uses would not be permitted for a fixed period of time.
- The delineation would be based on the basis of pre-defined criteria. This could mean, for instance, that a certain dense forest would not be allowed to be converted to a coal mine for the next 30 years, but it could be allowed to be cleared for a thermal power plant.
- In the **Godavarman case, the Supreme Court had directed states to set up expert committees to draw up a list of forests that** were not notified under the Indian Forest Act, 1927 (IFA), but deserved to be protected by the FCA.
- **Several states are yet to comply with this requirement**.
- The proposed amendments are relevant to a bevy of forest land-related issues.
- The proposed amendment excludes from the purview of the FCA those forests which were described as such in government records (but not notified under the IFA) and were put to non-forest use by a government order issued before the 1996 judgment.
- The Karnataka High Court in Gireesh Achar v. Government of India and Ors case recently dealt with a matter wherein the state government had passed several orders from 1959 to 1969 to de-notify lands classified as "state forest" (but not notified under IFA), and to divert them for non-forest purposes.
- The **lands were then allotted for rehabilitation of displaced people**.
- The state **government completed this process of dereservation of reserved forests in 2017.**
- **On March 4, 2021, the high court** struck down actions of the state government for not taking "prior approval of the central government" as required under Section 2 of the FCA. It recommended criminal action against any officers responsible for allowing non-forest use of forest land.
- The **exemption of zoos and safaris from "non-forest purpose" comes a year after the government proposed to open a zoo in** Mumbai's Aarey forest and a tiger safari in Madhya Pradesh led to objections from biologists.
- The Goa government since 1996 has formed several expert committees to demarcate the 'private forests' that are owned by individuals and are not notified as forests.
- In 2021, the National Green Tribunal criticised the state governments for the delay and warned of coercive action against officials responsible in case of further delays.

FOOD SECURITY

GS-II SOCIAL JUSTICE

Context

- The **first and historic United Nations Food Systems Summit (UNFSS) 2021** which was held in September this year has concluded.

Need of Strong Food Security System

- In terms of **larger goals, the food system transformation is considered essential in achieving the sustainable development agenda 2030.** This makes strong sense as 11 Sustainable Development Goals (SDGs) out of 17 are directly related to the food system.

Objective of Strong Food Security System

- Ensure access to safe and nutritious food for all;
- Shift to sustainable consumption patterns;
- Boost nature-positive production;
- Advance equitable livelihoods,

- Build resilience to vulnerabilities, shocks, and stress.

Challenges to Food Security System

- Climate change and unsustainable use of land and water resources are the most formidable challenges food systems face today.
- Dietary diversity, nutrition, and related health outcomes are another area of concern as a focus on rice and wheat has created nutritional challenges of its own.
- India has a 50% higher prevalence of undernutrition compared to the world average.
- Food wastage in India exceeds Rs. 1-lakh crore.

Indian Response

- **Indian Policy has led to diversification of agriculture** beyond field crops and brought greater focus on the horticulture, dairy, animal husbandry, and fishery sectors.
- **Indian Food Security system has elements of nutritional health, food safety and standards, sustainability, deployment** of space technology.
- The **supply of fortified rice in PDS and Poshan Abhiyan are the two steps among many to address the challenge** of under nutrition and malnutrition.
- India has created a National Food Security Act 2013 that anchors the Targeted Public Distribution System (TPDS), the Mid-Day meals (MDM), and the Integrated Child Development Services (ICDS). Today, India's food safety nets collectively reach over a billion people.
- In 2020, India produced over 30 crore tonnes of cereals and had built up a food stock of 10 crore tonnes.
- the introduction of the One Nation One Ration Card (ONORC) will allow beneficiaries to access their food entitlements from anywhere in the country.

NATIONAL DIGITAL HEALTH MISSION

GS-II SOCIAL JUSTICE

Context

- National digital health mission inaugurated by Prime Minister of India.

Background

- MoH&FM set up a committee under J. Satyanarayana to develop an implementation framework for the National Health Stack.
- The Satyanarayana committee recommended drafting a National Digital Health Blueprint to lay down the building blocks and action plan for a digital health mission.
- National Digital Mission Blueprint recommended the establishment of an entity called National Digital Health Mission to provide for a digital healthcare ecosystem for healthcare services across the country.

Objectives of the Mission

- To strengthen the accessibility and equity of health services, including continuum of care with citizens as the owner of data, in a holistic healthcare programme approach leveraging IT & associated technologies and support the existing health systems in a 'citizen-centric' approach, the NDHM envisages the following specific objectives:
- To **establish state-of-the-art digital health systems, to manage the core digital health data, and the infrastructure required** for its seamless exchange.
- To **establish registries at appropriate level to create a single source of truth in respect of clinical establishments, healthcare professionals**, health workers, drugs and pharmacies.
- To **enforce adoption of open standards by all national digital health stakeholders**.
- To **create a system of personal health records, based on international standards, easily accessible to individuals** and healthcare professionals and services providers, based on individual's informed consent.
- To **promote development of enterprise-class health application systems with a special focus on achieving** the Sustainable Development Goals for health.
- To **adopt the best principles of cooperative federalism while working with** theStates and Union Territories for the realization of the vision.
- To ensure **that the healthcare institutions and professionals in the private sector participate actively with p**ublic health authorities in the building of the NDHM, through a combination of prescription and promotion;
- To **ensure national portability in the provision of health services**.
- To **promote the use of clinical decision support (CDS) systems by health professionals and practitioners**.
- To **promote a better management of the health sector leveraging health data analytics and medical research**.
- To provide for enhancing the e ciency and e ectiveness of governance at all levels.

- To support effective steps being taken for ensuring quality of healthcare
- To strengthen existing health information systems, by ensuring their conformity with the defined standards and integration with the proposed NDHM.

Health Data

- Health data is critical for creating holistic views of individuals, personalizing treatments, improving communication between caregivers and individuals, and delivering better health outcomes. Health data can be classified into the following categories:
- **Personal Health Data** - Data related to an individual containing detailed information of various health conditions and treatments. It includes any data with personally identifiable information of various stakeholders, e.g. healthcare professionals. 2.
- Non-Personal Health Data - Includes aggregated health data like the number of dengue cases and anonymized health data where all personally identifiable information has been removed. This will also include information about health facilities, drugs etc. which do not involve personally identifiable information.

Principles of health data management

- **Individual Owned:** All records and their components will be owned and controlled by individuals —HIPs will be data fiduciaries.
- **Health Lockers**: Patients will have the choice to keep a copy of their records in their own cloud store called Health Lockers. Patients will have the ability to store all records through their lifetime in these lockers. Several Health Lockers will exist giving patients adequate choice & security. DigiLocker initiative of NeGD, MeitY shall **be the prioritized choice for Health Lockers, while the individuals will be able to consider other options too,** with appropriate compliance as defined in NDHB.
- **Digilocker will provide access to users of their electronic health records and will also provision an instance of Digilocker** as Health Locker and storage infrastructure for this purpose, in case required by MoHFW.
- **Consent Driven Sharing: Health** records will be accessible and shareable by the patient with appropriate consent, and complete control of the records will remain with the patient.
- **Revoke Consents: HIUs** are expected to implement the rules specified in consent including time limitations. Individuals will have the right to review and revoke any consent that has been issued. HIUs are required to implement the revocation and provide a confirmation back to the user.
- **Partial Sharing:** Individuals will have the right to share only a part of their record with doctors as per their will. However, in such a case, doctors will be informed that they are being provided with partial information and can advise the patient that treatment ability may be limited due to lack of full information.
- **Voluntary:** Sign-up for PHRs will be voluntary and even after sign-up, a patient will have the right to opt-out. Links to their documents across HIPs would be deleted.
- **Records from Govt Schemes: Government** schemes—such as PMJAY, NIKSHAY—will act as HIPs and issue any medical records from the scheme into patient PHRs.
- **Update of an Issued Health Record:** If a health provider decides to update an already issued health record, the original record and an audit trail of the change will be available to the patient.
- **User Generated Data:** Users can add reading from IoT and other devices like wearables to their PHR. The data will be stored in the Health Locker which can act as a HIP for the user. All user added data will be clearly and separately labelled to ensure care providers can differentiate the data generated by other providers vis a vis those added by the user.
- **Sharing Health Data:** Patients will be allowed to share health data to any HIU with consent.
- **Grievance:** Users will be provided options to complain about misuse and have any issues resolved.
- **Forget My Data: Users** can opt out from linking their records across HIPs but cannot ask HIPs to delete their data. HIPs are required to store the data for users for the period as required by law. Users can only delete user uploaded data or the copy of the records they have in their Health Locker.

Challenges

- One big challenge is how to bring undiagnosed or untreated ailments (an illness, typically a minor one) into account.
- Unless healthcare is affordable to the poor, it is difficult to bring people to seek treatment for all ailments.
- Data misuse – It is a challenge to secure the health data of the citizens along with other personal information to avoid a breach of the right to privacy.
- Leakages from health repositories – Technological advancement and high security to avoid any leakage of the data.
- Risk of Online Fraud
- Issue of Health Literacy
- Addressing Out-of-pocket Expenditure
- Profiteering by pharma companies
- Foreign surveillance

FATF

The story so far

- In June 2018, the Financial Action Task Force (FATF) **placed Pakistan on the 'grey list'** of jurisdictions under increased monitoring.
- Since then, it has been presented with multiple recommendations for compliance.
- Owing to Pakistan's failure in fully implementing all the action points, it **was once again retained on the 'grey list'** following the conclusion of the latest FATF plenary on October 21, 2021.
- Pakistan was first put on the list in 2008, removed in 2009 and then again remained under increased monitoring from 2012 to 2015.

What is FATF?

- The FATF, a **global money laundering and terrorist financing watchdog**.
- It **lays down international standards with an objective to prevent such activities.**
- This **inter-governmental body** work to "set standards and promote effective implementation of legal, regulatory and operational measures for combating money laundering, terrorist financing and other related threats to the integrity of the international financial system".
- It currently has **39 members**, including **two regional organizations — the European Commission and the Gulf Cooperation Council.**
- **India is a member of the FATF** consultations and its Asia Pacific Group.

What is 'Grey List' and 'Black list"?

- The FATF "**greylist" refers to countries that are under "monitored jurisdictions".**
- "Blacklist" refers to those facing a "call to action" or severe banking strictures, sanctions and difficulties in accessing loans.As of now, **only two countries** were on the FATF blacklist: **North Korea and Iran**.

What is the effect of 'grey listing'?

- According to the FATF, when it places a jurisdiction under **increased monitoring**, it means the country has committed to resolve swiftly the identified strategic deficiencies within agreed timeframes.
- Although **no legal consequences follow grey listing**, it is understood that the **country's access to international loans gets restricted.**

Why was Pakistan retained in the 'grey list'?

- Pakistan was '**grey listed' in June 2018**, after the FATF found multiple strategic anti-money laundering (AML)/combating the financing of terrorism (CFT) deficiencies on its part.
- It was asked to implement the action plan for achieving 10 objectives.
- At the October 2021 plenary, the FATF observed that **Pakistan had completed 26 of the 27 action** items in its 2018 plan.
- The one remaining item was about **continuing to demonstrate that terror financing investigations and prosecutions targeted senior leaders and commanders of U.N.-designated terrorist groups**.
- In response to the additional deficiencies later identified in Pakistan's 2019 Asia Pacific Group Mutual Evaluation Report in June 2021, Pakistan had given further commitment to address the shortcomings with respect to a new action plan primarily focused on combating money laundering.

FINANCIAL ACTION TASK FORCE (FATF)
Mechanisms & Structure

WHAT DOES THE FATF DO?
- Sets international standards to combat money laundering and terrorist financing.
- Assesses and monitors compliance with the FATF standards.
- Conducts typologies studies of money laundering and terrorist financing methods, trends and techniques.
- Responds to new and emerging threats.

The FATF currently consists of 37 member States and two regional organisations (European Commission & Gulf Cooperation Council), representing most major financial centres in all parts of the globe.

FATF Members • Monitored jurisdictions "Grey list" • High-risk countries "Black list"

FATF Associate Regional Members:
- Asia-Pacific Group (APG)
- CFATF
- Eurasian Group (EAG)
- ESAAMLG
- GAFILAT
- GIABA
- MENAFATF
- MONEYVAL
- GABAC

FATF Secretariat Paris

Other observer bodies:
- World Bank
- IMF
- OECD
- OSCE
- Asian Dev. Bank
- African Dev. Bank
- European Central Bank
- Egmont Group
- Europol & Interpol
- Eurojust
- UNODC & UNCTED

List of High-Risk 'Non-Cooperative Countries or Territories' ('Black list') & other monitored jurisdictions ('Grey list')

- Democratic People's Republic of Korea
- Iran

Bahamas	Botswana	Cambodia	Ethiopia
Ghana	Pakistan	Panama	Sri Lanka
Syria	Trinidad & Tobago	Tunisia	Yemen

How may Pakistan come off the list?

- The FATF has advised Pakistan that it should continue to work to address its other strategically important AML/CFT deficiencies by:
    1. **providing evidence** that it actively seeks to enhance the impact of sanctions beyond its jurisdiction by nominating additional individuals and entities for designation at the U.N.; and
    2. **demonstrating an increase in money laundering investigations and prosecutions** and that proceeds of crime continue to be restrained and confiscated in line with Pakistan's risk profile, including working with foreign counterparts to trace, freeze and confiscate assets.

What are impacts of grey listing?

BRICS   *GS-II INTERNATIONAL RELATIONS*

Context

- India as the current BRICS Chair convened the 7th Meeting of BRICS Communications Ministers.

Key highlights of the summit

- The Ministers recognized the **significant role of ICTs in increasing the effectiveness of BRICS countries' response to the challenges caused by the COVID-19 pandemic** and assisting in the recovery of economies, business continuity, and minimizing the social and economic impact of the Covid-19 pandemic.
- It discussed the need to work together to **develop multi-pronged approaches and reference models for affordable access to communications services and digital technologies** for benefitting people, thereby achieving Sustainable Development Goals (SDGs).
- Ministers expressed **concerns on the risks and ethical dilemmas related to Artificial Intelligence** and encouraged members to work together to deal with such concerns and risks of Artificial Intelligence and its ethical and responsible uses.

BRICS Partnership on New Industrial Revolution (PartNIR)

- Ministers adopted the **Terms of References of Digital BRICS Task Force** and supported the advancement in work of the **BRICS Partnership on New Industrial Revolution (PartNIR)**.

About BRICS

- This plurilateral grouping comprising **Brazil, Russia, India, China and South Africa** is chaired by turn.
- **India held the chair in 2012 and 2016** too.
- The importance of BRICS is self-evident: it **represents 42% of the world's population, 30% of the land area, 24% of global GDP and 16% of international trade.**

Four priorities of BRICS

- Reforming the multilateral system,
- Counter-terrorism cooperation,
- Using digital and technological solutions to achieve SDGs, and
- Enhancing people-to-people cooperation.

What are its immediate goals now?

- As the current chair, India has outlined four priorities.

Reform of multilateral institutions

- The first is **to pursue reform of multilateral institutions ranging from the United Nations, World Bank and the International Monetary Fund to the World Trade Organization and now even the World Health Organization.**
- BRICS **emerged from the desire to challenge dominance (by the U.S.) in the early years of the century**, and it remains committed to the **goal of counter-dominance (by China) now**.

Resolve to combat terrorism

- The second is the **resolve to combat terrorism**. Terrorism is an international phenomenon affecting Europe, Africa, Asia and other parts of the world.
- Tragic developments concerning Afghanistan have helped to focus attention sharply on this overarching theme, stressing the need to bridge the gap between rhetoric and action.
- BRICS is attempting to pragmatically shape its **counter-terrorism strategy by crafting the BRICS Counter Terrorism Action Plan** containing specific measures to fight radicalization, terrorist financing and misuse of the Internet by terrorist groups.

Promoting technological and digital solutions for the Sustainable Development Goals

- Digital tools have helped a world adversely hit by the pandemic, and India has been in the forefront of using new technological tools to improve governance.

Expanding people-to-people cooperation.

- But enhancing people-to-people cooperation will have to wait for international travel to revive. Interactions through digital means are a poor substitute.

BRICS opposes exceptionalism: China

- BRICS has been busy deepening trade and investment ties among its member states.
- The difficulty stems from China's centrality and dominance of intra-BRICS trade flows.
- There is an urgent need for **diversification and strengthening of regional value chains**.
- Policymakers have been encouraging an increase in intra-BRICS cooperation in diverse areas like agriculture, disaster resilience, digital health, traditional medicine and customs cooperation.
- **China's economic rise** has created a serious imbalance within BRICS; Beijing's aggressive policy, especially against India, puts BRICS solidarity under exceptional strain; and BRICS countries have not done enough to assist the Global South to win their optimal support for their agenda.

MUSLIM UIGHUR COMMUNITY IN XINJIANG   *GS-II INTERNATIONAL RELATIONS*

Context

- Forty-three countries have called on China to **"ensure full respect for the rule of law"** for the Muslim Uighur community in Xinjiang.
- The declaration, signed by the United States, European countries and Asian member states, accused China of **human rights violations against the Uighurs, including torture, forced sterilization and forced disappearances.**
- It asked China to allow immediate access to Xinjiang for independent observers, including the UN High Commissioner for Human Rights.
- Beijing has long **denied accusations of ethnic cleansing against Uighurs and other Muslim Turkic people in Xinjiang**, where experts have estimated that more than one

Xinjiang region
Total population
23.98m

Ethnic breakdown
Uighur — 11.45m
Han Chinese — 8.27
Kazakh — 1.59
Hui — 1.02
Kyrgyz — 0.2
Others — 1.45

million people are incarcerated in camps.

Who are the Uyghurs?

- There are about 12 million Uyghurs, mostly Muslim, living in Xinjiang, which is officially known as the Xinjiang Uyghur Autonomous Region (XUAR).
- The Uyghurs speak their own language, which is similar to Turkish, and see **themselves as culturally and ethnically close to Central Asian nations.** They make up less than half of the Xinjiang population.
- Recent decades have seen a **mass migration of Han Chinese (China's ethnic majority) into Xinjiang**, allegedly orchestrated by the state to dilute the minority population there.
- China has also been accused of targeting Muslim religious figures and banning religious practices in the region, as well as destroying mosques and tombs.
- Uyghur activists say they fear that the group's culture is under threat of erasure.

Where is Xinjiang?

- Xinjiang lies in the **north-west of China** and is the country's largest region.
- Like Tibet, it is autonomous, meaning - in theory - it has some powers of self-governance. But in practice, both regions are subjected to major restrictions by the central government.
- Xinjiang is a **mostly desert region** and produces about a fifth of the world's cotton.
- The region is also **rich in oil and natural gas and because of its proximity to Central Asia and Europe is seen by Beijing as an important trade link.**
- In the early 20th Century, the Uyghurs briefly declared independence for the region but it was **brought under the complete control of China's new Communist government in 1949.**
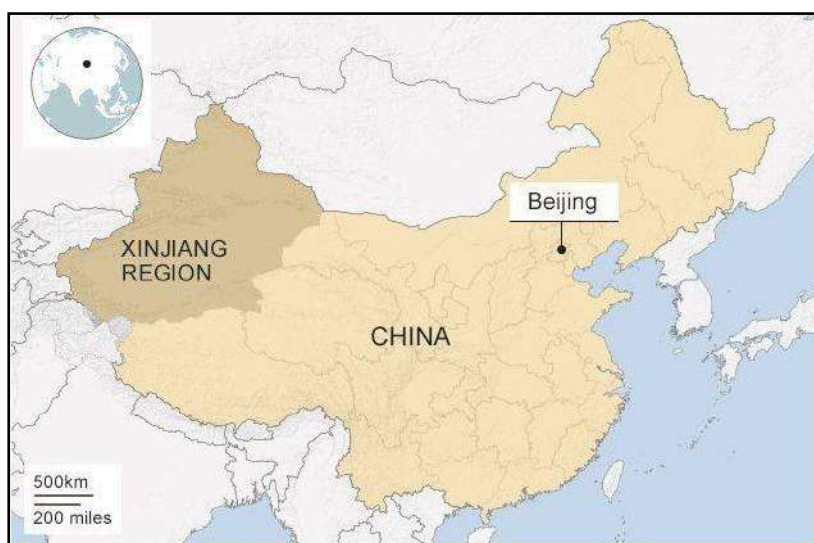
What are the allegations against China?

- Several countries, including the US, Canada and the Netherlands, have accused China of **committing genocide -** defined by international convention as the "**intent to destroy, in whole or in part, a national, ethnical, racial or religious group".**
- China has been **forcibly mass sterilizing Uyghur women** to suppress the population, **separating children from their families, and attempting to break the cultural traditions of the group.**

What does China say?

- China **denies all allegations** of human rights abuses in Xinjiang.
- It said it 2019 that it had **released everyone from its "re-education" camp system**, though testimony from the region suggests many are still detained and many were transferred from camps to formal prisons.
- China says the **crackdown in Xinjiang is necessary to prevent terrorism and root out Islamist extremism and the camps are an effective tool for re-educating inmates** in its fight against terrorism.
- It insists that **Uyghur militants are waging a violent campaign for an independent state by plotting bombings**, sabotage and civic unrest, but it is accused of exaggerating the threat in order to justify repression of the Uyghurs.
- China has dismissed claims it is trying to reduce the Uyghur population through mass sterilizations as "baseless", and says allegations of forced labor are "completely fabricated".

India's stand on Uyghurs

- **Neutral position**: India has taken a **neutral position on China's policy** in Xinjiang. Being a home to the world's second-largest Muslim population has hardly uttered a word of significance on the plight of the Uyghurs.
- **No tit for tat move:** In the aftermath of the abrogation of Article 370 China was the only country that backed Pakistan's efforts to internationalize the Kashmir issue at the UN Security Council. For a decade, China ensured a stalemate at the UN on the designation of Masood Azhar as a global terrorist. China is among the three nations that have come to Pakistan's rescue at the Financial Action Task Force (FATF), blocking efforts to blacklist the county for its state support to terrorist outfits in its territory.

- Uyghur dissidents have repeatedly requested **India to take a proactive stance and "find its voice to speak up for human rights.**
- **Democratic norms and principles are integral to India's growing prowess in the neighborhood** and the rest of the world. Maintaining silence on the issue of the Uyghurs is granting Beijing to continue its human rights violation.

U.S.-INDIA RELATIONS
GS-II INTERNATIONAL RELATIONS

Context
- 8th U.S.-India Economic and Financial partnership meet held.

Key highlights of meet
- For the **first time a session is held dedicated to climate finance**.
- It **reflected the "critical" role climate finance** has to play in achieving global climate goals and the two sides' commitments to drive "urgent progress" in combatting climate change.
- The two sides **reaffirmed the collective developed country goal to mobilize $100 billion annually for developing countries** from public and private sources.
- It intend to engage further on addressing climate change through the **Finance Mobilization pillar of** Climate Action and Finance Mobilization Dialogue under the **U.S.-India Climate and Clean Energy Agenda 2030 Partnership.**
- India has been under pressure, including from the U.S. and U.K., to provide a deadline to reach 'Net Zero' emissions.

Other high-level dialogue mechanisms between India-U.S.
- India and the U.S. have **more than 50 bilateral inter-governmental dialogue mechanisms** for exchange of views on issues of mutual interest. A number of such dialogue mechanisms are held at the Ministerial level including:
  o **India-U.S. 2+2 Ministerial Dialogue:** India-U.S. 2+2 Ministerial Dialogue is led by the heads of foreign and defence ministries of India and the U.S. Two rounds of this Dialogue have been held so far.
  o **India-U.S. Commercial Dialogue:** The India-U.S. Commercial Dialogue is led by the Minister of Commerce and Industry (CIM) and the U.S. Secretary of Commerce.
  o **India – U.S. Economic and Financial Partnership:** The India – U.S. Economic and Financial Partnership is led by the Finance Minister (FM) and the U.S. Secretary of the Treasury.
  o **India-U.S. Trade Policy Forum:** The India-U.S. Trade Policy Forum is led by CIM and the U.S. Trade Representative (USTR).
  o **India-U.S. Strategic Energy Partnership:** The India-U.S. Strategic Energy Partnership is led by the Minister of Petroleum and Natural Gas and the U.S. Secretary of Energy.
  o **India-U.S. Homeland Security Dialogue (HSD):** The India-U.S. Homeland Security Dialogue is led by the Minister of Home Affairs and the Secretary, U.S. Department of Homeland Security.

Bilateral engagement between India and the U.S.
Defence
- Defence relationship has emerged as a major pillar of India- U.S. strategic partnership with intensification in defence trade, joint exercises, personnel exchanges, and cooperation in maritime security and counter-piracy.
- India conducts more bilateral exercises with the U.S. than with any other country. Some important bilateral exercises are: **Yudh Abhyas, Vajra Prahar, Tarkash, Tiger Triumph, and Cope India.**
- **Aggregate worth of defence-related acquisitions from the U.S. is more than US$ 15 billion.**
- The **India-U.S. Defence Technology and Trade Initiative** (DTTI) is aimed at promoting co-development and co- production efforts.
- In June 2016, the U.S. recognized India as a **"Major Defence Partner",** which commits the U.S. to facilitate technology sharing with India to a level commensurate with that of its closest allies and partners.
- The announcement of India's elevation to **Tier I of the Strategic Trade Authorization (STA)** license exception will further contribute towards facilitating interaction in advanced and sensitive technologies.
- Apart from the 2+2 Ministerial Dialogue, some other important dialogue mechanisms on defence cooperation are: Defence Policy Group, Military Cooperation Group, Defense Technology and Trade Initiative etc.

Counter-terrorism and internal security
- The bilateral **Joint Working Group on Counter-Terrorism** is an important mechanism in this regard.
- Both sides have also been working together in law- enforcement and security cooperation through the **six subgroups under the HSD.**
- Apart from the above, both sides also cooperate with each other on counter-terrorism and security issues in various multilateral bodies.

- Cyber security cooperation between India and the U.S. is carried out under the India-U.S. Cyber Framework.
- The two important dialogue mechanisms in this domain are – **India-U.S. Cyber Security Dialogue and the India-U.S. Joint Working Group on ICT.**

Trade and Economic

- The U.S. is **India's largest trading partner, goods and services combined**.
- **Bilateral trade in goods and services grew by more than 10% per annum over the past two years to reach US$ 142 billion in 2018.**
- India's goods exports to the U.S. were valued at US$ 54 billion and India's goods imports from the U.S. were valued at US$ 33 billion.
- India's services exports to the U.S. were valued at US$ 28.7 billion and India's imports of services from U.S. were valued at US $ 25.8 billion.
- S. direct investments in India are estimated at about US$ 44.5 billion whereas Indian FDI in U.S. is estimated at US$ 18 billion.

Energy

- The U.S. has emerged as a key partner for India in the field of energy.
- The **bilateral Strategic Energy Partnership** launched in 2018 is robust and witnessing increasing diversification across both conventional and renewable energy sources.
- An India-U.S. Natural Gas Task Force was also created.
- **India has started importing crude and LNG from the U.S.** from 2017 and 2018 respectively.

Civil Nuclear Cooperation

- The **bilateral civil nuclear cooperation agreement** was signed in October 2008.
- India and the U.S. have a **Civil Nuclear Energy Working group on R&D activities**.
- A U.S. company - **Westinghouse is in discussions with Nuclear Power Corporation of India Limited (NPCIL)** for implementation of a project that envisages six AP 1000 reactors at Kovvada (A.P.).

S&T/Space

- The multi-faceted cooperation between India and the U.S. in the field of Science and Technology has been growing steadily under the framework of the **India-U.S. Science and Technology Cooperation Agreement signed in 2005, renewed in 2019.**
- The **Indo-U.S. Science & Technology Forum** was established to promote cooperation in Science, Technology and Innovation.
- Both countries also have a long history of cooperation in civil space arena that includes cooperation in earth observation, satellite navigation, and space science and exploration.
- The **India-U.S Joint Working Group on Civil Space Cooperation** regularly reviews the status of cooperation and identifies new areas for furthering space cooperation.
- **ISRO and NASA** are also working towards intensifying cooperation in Mars exploration, heliophysics, and human spaceflight through relevant working groups between both sides.

Indian Diaspora

- The number of Indians and Indian Americans in the U.S. is estimated at around **4 million, which accounts for almost 1% of the total U.S. population.**
- It includes a large number of professionals, entrepreneurs and educationists with considerable and increasing influence in U.S. polity, economy and the society.
- S. is one of the most favored destinations by Indian students for higher education. **More than 200,000 Indian students are currently pursuing various courses in the U.S.**

Regional and International Cooperation

- Both countries are collaborating and coordinating on a number of regional and global issues in both security as well as development spheres.
- Both are also engaged in areas such as maritime and cyber security, humanitarian assistance and disaster relief efforts.
- **The U.S. has expressed support for India's permanent membership on a reformed U.N. Security Council and for India's early membership in the Nuclear Suppliers Group.**
- India and the U.S. remain engaged to promote peace; prosperity; and security, in the Indo-Pacific as well as globally.

Four foundational agreements:

1. **GSOMIA (General Security of Military Information Agreement):** It **guaranteed that the two countries would protect any classified information or technology that they shared.** It was aimed at promoting interoperability and laid the foundation for future US arms sales to the country.
2. **LEMOA (Logistics Exchange Memorandum of Agreement):** LEMOA **allows the militaries of the US and India to replenish from each other's bases, and access supplies, spare parts and services from each other's land facilities, air bases, and ports, which can then be reimbursed.**

3. **COMCASA (Communications Compatibility and Security Agreement):** The pact **allows the US to provide India with its encrypted communications equipment and systems so that Indian and US military commanders, aircraft and ships, can communicate through secure networks during both peace and war.**

4. **BECA (Basic Exchange and Cooperation Agreement):** facilitates the provision of targeting and navigation information from US systems.

Frictions in INDIA-USA relations

- **Trade related:** like removal of India from its list of developing countries and taking off India from list of beneficiary-developing countries under its scheme of Generalized System of Preferences.
- **Tariffs war:** In 2018, the US imposed additional tariffs of 25% on steel and 10% on aluminium imports from various countries, including India, India's refusal to remove the 20% tariffs on ICT products.
- **WTO disputes:** like Capping prices of medical devices by India, greater Indian market access for American agriculture and dairy products etc.
- **IPR:** India is also on U.S.'s Priority Watch List.
- **H1B visas:** US has ramped up H-1B denials.
- **S.'s soft policy towards Pakistan and tensions with Iran, Russia and divergence of interests in Afghanistan.**

Analysis

- For a strategic partnership to blossom, the presence of three factors is necessary. There must be
  1. long term vision
  2. volume of exchange
  3. defense and security part or understanding.

Principal variables that would drive Indo–US relations in the future

- Pakistan and Terrorism.
- Economics/Trade and finance.
- Managing the global commons.
- 7 Es: Economics, Ecology, Epidemics, Education, Ethnicity and emancipation, Energy, and Entente (coming together in the area of defence, space and technology).

Variables that would prove to be impediments to the growth of the Indo–US strategic partnership in the future

- US domestic problems: Political disunity, protectionism etc
- Fear of China's rise at the cost of US power
- India's domestic problems: Issues such as Naxal insurgency, corruption, bureaucratic delays and anti-American feeling among certain sections of the Indian polity.

8 principal areas of Indo–US cooperation

- **Possible support for India in UNSC:** Amid India's push for UN Security Council reforms, the US has said it supports building a consensus for a "modest" expansion of the Council for both permanent and non-permanent members, provided it does not diminish its effectiveness or its efficacy and does not alter or expand the veto.
- **US Entity List:** removing entities from the US Entity List would certainly consolidate the relationship.
- **Economic aspect of the relationship will also be crucial**. $10 b worth deals with various Indian corporations suggest that the US is looking for Indian investments which would create jobs in the US.
- **India getting US support for membership in four export control regimes:** what are the criteria for memberships and how other countries react and whether US can push Indian claim.
- **Pakistan-US relations:** US military aid to Pakistan would continue to be an area of irritation for India.
- **Counter–terrorism:** some good cooperation has happened between India and the US. But this cooperation needs to be deepened further given that the US is still reluctant to share intelligence about Pakistan with India.
- India expects the US to advocate and support a **greater role for India in Afghanistan**. Pakistan's efforts to exclude India's role in Afghanistan has been voiced by India with the US.
- **Good relations with China** are important for both countries and neither country wants to offend China. There continues to be a divergence between India and the US on Iran and Myanmar. Convergence will take time to develop. There is anti-US sentiment in India in some political quarters. Finally, stronger Indo-US relations may alienate other countries and allies like Russia and China.

Context

- NITI Aayog released a performance assessment report of district hospitals in India, titled **Best Practices in the Performance of District Hospitals.**

About

- The report is an outcome of collaboration with the **Ministry of Health and Family Welfare and WHO India.**
- The National Accreditation Board for Hospitals and Healthcare Providers, a constituent board of the Quality Council of India, conducted the on-ground data validation.
- This report is the **first-ever performance assessment of district hospitals undertaken across the country.**
- The Health Management Information System (HMIS) **data for the year 2017–18 has been used as baseline** for this exercise.
- The framework classifies hospitals in three categories: **Small Hospitals (less than or equal to 200 beds), Mid-sized Hospitals (between 201–300 beds) and Large Hospitals (more than 300 beds).**

Findings

- Overall, 75 district hospitals across 24 States and Union Territories emerged as top performers on indicators ranging from availability of beds, medical and paramedical staff, core health and diagnostic testing services to outputs such as bed occupancy rate and number of surgeries per surgeon.
- On an average a district hospital in **India has 24 beds per 1 lakh population.**
- The Indian Public Health Standards (IPHS) 2012 guidelines recommend district hospitals to **maintain at least 22 beds per 1 lakh population (based on district population average of 2001 Census)**
- Thus, the average number of beds per lakh population in a district hospital was **higher than the recommended** figure of 22 beds per lakh of population across 21 states and Uts
- District hospitals in India have a range of 1 to 408 beds per 1 lakh population.
- The report highlights some key issues faced by the health system and provides some sustainable solutions to strengthen the condition of district hospitals in the country, primarily involving improving data reporting in HMIS, and encouraging such performance assessment exercises to bring about greater accountability for health care services in district hospitals.

NITI AAYOG REPORT FINDINGS

Indian Public Health Standards 2012 guidelines recommend district hospitals to maintain at least 22 beds per 1 lakh population. These states have fewer average beds per district.

STATE	BEDS
Madhya Pradesh	20
Chhattisgarh	20
West Bengal	19
Rajasthan	19
Gujarat	19
Punjab	18
Andhra Pradesh	18
Assam	18
Jammu & Kashmir	17
Maharashtra	14
Haryana	13
Uttar Pradesh	13
Telangana	10
Jharkhand	9
Bihar	6

Source: 'Best Practices in the Performance of District Hospitals'

Significance

- This report can serve as a foundation for a roadmap of action for developing upgraded and improved district hospitals in the country.

General issues plaguing district hospitals and healthcare system in India

- **Poor Infrastructure: Buildings are either very old and in dilapidated conditions** or are not maintained properly, because of lack of convergence with maintenance department.
- **Lack of upgradation:** The facilities at district hospitals require continued up-gradation to keep pace with the advances in medical knowledge, diagnostic procedures, storage and retrieval of information.
- **Poor R & D**: Development of hospitals is not keeping pace with the scientific development.
- **Lack of upgradation:** A typical **district hospital lacks modern diagnostics and therapeutic equipment, proper emergency services, intensive care units, essential pharmaceuticals and supplies, referral support and resources**.
- **Lack of skilled staff:** There is a l**ack of trained and qualified staff for hospital management and for the management of other ancillary and supportive services** viz. medical records, central sterilization department, laundry, house-keeping, dietary and management of nursing services. Ki
- **No accountability:** There is **lack of community participation and ownership, management and accountability** of district hospitals through hospital management committees.
- **Poor access to health services:** A Lancet study published in 2018 indicated, **India ranks 145th out of 195 countries in terms of access to quality health services,** lagging behind China (48), Sri Lanka (71) Bhutan (134) and Bangladesh (132).

- **Huge out of pocket expenditure:** When it comes to Out-of-pocket (OOP) expenses for healthcare services, India ranks at 62.4%, higher than the global average of 18.55%.
- **Lack of insurance coverage:** A whopping **80 percent of India's population does not have any well-entrenched health insurance coverage** and over 68 percent lacks passable access to essential medicines.

Way Ahead

- It is imperative for India to develop an efficient healthcare system and here public investments in building
  - medical colleges,
  - nursing schools,
  - training for medical staff,
  - manufacture of specialized medical equipment,
  - synthetic biology,
  - drug or vaccines manufacturing and
  - a well-crafted integrated structure of primary, secondary and tertiary care hospitals that uses telemedicine to optimize the utilization of capacity, is a welcome move.
- Some of these **can be privatized over time.**
- To build a futuristic system of healthcare delivery, the **triple helix model of innovation suits India**, for ensuring greater transparency in the research collaborations.
- The **Government, academia and industry needs to come together and work in tandem** more than ever before, in research and manufacturing. Many such are currently underway.
- GOI and various state governments are coming up with green field hospital projects, states are upgrading specialty hospitals plus medical colleges with OPD annexe.
- To **add better connectivity like highways, railways and airports connecting all hospitals** and medical facilities is a must to better the healthcare infrastructure in India.
- A **conducive business ecosystem, topped with light-touch regulations and well-implemented healthcare reforms** can go a long way in enabling India to hold a key place in the healthcare delivery map.
- Experts opine that a **fiscal package of Rs 2.1 lakh crore is needed to catapult India's healthcare infrastructure** and facilitate more R&D and innovation in the healthcare space.
- The need now is to **initiate structural changes in India's health policy, introduce increased technology deployment in the sector, reduce dependency on import and encourage domestic manufacturing of healthcare equipment** and devices, and create a stronger native healthcare infrastructure to assist the country's quest towards economic revival.

🔴 TOBACCO USAGE   *GS-II HEALTH*

Context

- Tobacco use in all forms, whether smoking or chewing, is associated with severe COVID-19 casualties, according to the Ministry of Health and Family Welfare and the Indian Council of Medical Research.

Details

- Now, the National Commission for Protection of Child Rights (NCPCR) has appealed to the Central Government to strengthen the tobacco control law to prevent the youth from taking up tobacco use.
- Experts have urged the Government to put curbs on the sale of tobacco products to those below 21, to impose a comprehensive ban on tobacco advertising and to ban sale of single sticks of cigarettes/bidis.
- Increasing the minimum legal age for sale of tobacco products from 18 to 21 and banning the sale of loose/single stick of cigarettes by amending **COTPA 2003 (Cigarettes and Other Tobacco Products Act)** are crucial to protect youth from tobacco as it has the potential to reduce tobacco use initiation and progression to regular smoking.
- Nearly **27% of all cancers in India are linked to tobacco usage.**

Provisions of COTPA ACT, 2013

- The Act prohibits smoking of tobacco in public places, except in special smoking zones in hotels, restaurants and airports and open spaces.
- Advertisement of tobacco products including cigarettes is prohibited.
- Tobacco products c**annot be sold to person below the age of 18 years, and in places within 100 yards radius from the outer boundary of an institution of education**.
- Tobacco products must be sold, supplied or distributed in a package which shall contain an appropriate pictorial warning, its nicotine and tar contents.
- The owner/manager/in-charge of a public place must display a board containing the warning **"No Smoking Area – Smoking**

here is an offence" in appropriate manner at the entrance and inside the premises.

- The Act also gives power to any <u>police officer, not below the rank of a sub-inspector</u> or any officer of State Food or Drug Administration or any other officer, holding the equivalent rank being not below the rank of Sub-Inspector of Police for search and seizure of premises where tobacco products are produced, stored or sold, if he suspects that the provision of the Act has been violated.

GAMING AND HEALTH

GS-II HEALTH

Context
- Gaming disorder increases during pandemic.

About
- A 2019 survey by the U.S.-based Limelight Networks found that India had the second largest number of gamers after South Korea.
- The **World Health Organization categorised gaming disorder as a mental health condition in 2018**, but as the pandemic increased screen time across age groups, concerns have been growing.
- According to the All India Gaming Federation, India's online gaming industry is expected to be worth Rs 15,500 crore by 2023.

Impact of gaming on health
- Research shows that gaming disorders can also be linked with **anxiety, depression, obesity, sleeping disorders, and stress.**
- People who remain physically inactive for long periods because of gaming may also be at higher risk of obesity, sleep disorders, and other health-related issues, according to WHO.
- While time spent online is still not as high as in other countries, almost **a quarter of adult Indian gamers had missed work while playing games during this pandemic.**
- Gaming addictions cause physical, social and emotional damages, impairing sleep, appetites, careers and social lives.

Steps being taken
- Last month, China limited gamers under 18 years to just three hours of online games per week, during specified times, and made the industry responsible for enforcing the restriction.

India's Case
- In India, legal focus has been on recent laws in the southern States seeking to ban online games such as rummy, poker or even fantasy sports which offer prize money or financial stakes.
- Recently, Kerala High Court quashed such a law in the State, accepting the industry's stance that, as games of skill rather than chance, they should not trigger bans on gambling.
- However, worried parents, psychiatrists and mental health advocates warn that the dangers go well beyond monetary motivations.
- An advisory by Rajasthan government warned parents and teachers to look out for abnormal behaviour in children to detect and prevent addiction to online gaming.

Way ahead
- Psychiatrists recommend that as a bare minimum, statutory warnings and mandatory breaks should be enforced to prevent binge gaming.
- It's time to take policy measures
- Limiting availability of video games (e.g., shutdown policy, fatigue system, and parental controls),
- Measures aiming to reduce risk and harm (e.g., warning messages), and
- Measures taken to provide help services for gamers.

ANTI-MALARIAL VACCINE

GS-II HEALTH

Context
- In a historic move, the World Health Organization (WHO) endorsed the first anti-malarial vaccine.

About
- The WHO said that it was recommending the use of the **RTS,S/AS01 (RTS,S) malaria vaccine** among children in sub-Saharan Africa and in other regions with moderate to high ***P. falciparum malaria transmission.***

Significance

- Malaria remains a primary cause of childhood illness and death in sub-Saharan Africa.
- The disease kills more than 2,60,000 African children under the age of five annually.
- The vaccine does significantly reduce life-threatening severed malaria.

Malaria

- Malaria is caused by single-celled microorganisms of the **Plasmodium group parasites.**
- The disease is most commonly spread by an infected **female Anopheles mosquito.**
- Five species of Plasmodium can infect and be spread by humans.
- Most deaths are caused by **falciparum, whereas P. vivax, P. ovale, and P. malariae generally cause a milder form of malaria.**The species **knowlesi rarely causes disease in humans.**
- **Symptoms:** fever, tiredness, vomiting, and headaches. In severe cases, it can cause yellow skin, seizures, coma, or death.Malaria is preventable as well as curable.
- **Vaccine:** RTS, vaccine.

India and Malaria

- According to the World Malaria Report 2019, India represents **3% of the global malaria burden.**
- Despite being the highest malaria burden country of the South East Asia region, India reported a **decline of 17.6% in 2019 as compared to 2018.**
- India has made remarkable progress during the recent years in reducing the malaria incidence.
- In May 2015, the World Health Assembly endorsed the Global Technical Strategy (GTS) for **Malaria Elimination 2016-2030, which lays down clear global goals, milestones and targets till 2030.**
- In accordance with the GTS, the Government of India launched the **National Framework for Malaria Elimination** 2016-2030 and the National Strategic Plan for Malaria Elimination 2017-2022 with WHO support.
- **India has a vision of a malaria free country by 2027 and elimination by 2030.**
- The WHO has also identified 25 countries with the potential to eradicate malaria by 2025 under its **'E-2025 Initiative'.**

Trivia

- **China is the first country in the WHO Western Pacific Region to be awarded a malaria-free certification** in more than 3 decades.
- Globally, 40 countries and territories have been granted a malaria-free certification from WHO.
- Recent Declarations: El Salvador (2021), Algeria (2019), Argentina (2019), Paraguay (2018) and Uzbekistan (2018).
- Countries that have achieved at least three consecutive years of zero indigenous cases can apply for WHO certification of their malaria-free status.

China's Malaria Elimination Strategy in brief

- 1-3-7 Strategy: The strategy refers to:
- A one-day deadline to report a malaria diagnosis,
- Confirming a case and determining the spread by the third day, and
- Measures taken to stop the spread by the seventh day, along with continued surveillance in high-risk areas.

PMBJP *GS-II HEALTH*

Context

- Pharmaceuticals & Medical Devices Bureau of India (PMBI), the implementing agency of Pradhan MantriBhartiyaJanaushadhiPariyojana (PMBJP) has completed the target of opening of 8,300 MantriBhartiya Jan AushadhiKendras (PMBJKs) for the FY 2021-22 before end of September, 2021.
- All the districts of the country have been covered under Pradhan MantriBhartiya Jan AushadhiPariyojana (PMBJP).

About

- PMBJPK **provide generic drugs**, which are available at lesser prices but are equivalent in quality and efficacy as expensive branded drugs.
- **BPPI (Bureau of Pharma Public Sector Undertakings of India)** has been established under the Department of Pharmaceuticals, with the support of all the CPSUs for coordinating procurement, supply and marketing of generic drugs through Pradhan MantriBharatiyaJanaushadhiPariyojana Kendra.
- Product basket of PMBJP presently **comprises drugs as well as 240 surgical instruments**.
- **"JanaushadhiSugam" a mobile application** for Pradhan MantriBhartiyaJanaushadhiPariyojana (PMBJP) facilitates the public

by providing a digital platform at the tip of their fingers.

- Under the Scheme, **medicines are procured from World Health Organization – Good Manufacturing Practices (WHO-GMP) certified suppliers** for ensuring the quality of the products.
- Apart from this, each batch of drug is tested at laboratories accredited **by 'National Accreditation Board for Testing and Calibration Laboratories' (NABL).** Only after passing the quality tests, the medicines are dispatched to PMBJP Kendras.
- Medicines available under PMBJP are **priced 50%-90% less than that of branded prices.**

Salient Features of the Scheme

- Ensure access to quality medicines
- Reduce the out of pocket expenditure on medicines and thereby redefine the unit cost of treatment per person
- Create awareness about generic medicines through education and publicity so tha t quality is not synonymous with only high price.
- Create demand for generic medicines by improving access to better healthcare through low treatment cost and easy availability.
- Encourage doctors, more specifically in government hospital to prescribe generic medicines.
- Enable substantial savings in health care more particularly in the case of poor patients and those suffering from chronic ailments requiring long periods of drug use.

Generic Drugs	Features	Brand Name Drugs
Off patent.	Patents	Patent protected.
Marketed under the Generic name of the drug.	Trade Name	Marketed under a unique proprietary name given by the company.
Manufactured by several pharmaceutical companies after patents expiration of the relevant brand name drug.	Manufactured by	Developed and manufactured by an innovator company.
Not required to perform.	Animal & Clinical study	Essential to perform.
Cheaper.	Price	Costly than generic drugs.
Look different from relevant brand name drug.	Appearance (Color, Shape, Size)	Unique look as design during product development.
Same Generic drug name in any country.	Name variation	Same or different brand names in different countries.
Same or altered but acceptable excipients	Excipients	Uses acceptable excipients
After expiration of patents and exclusivities	Availability	From product launch after proving the safety and effectiveness.
Paracetamol	Examples	Tylenol, Para, NAPA, Mapap, Nortemp, Acamol. Acetalgin, Calpol, Febridol, Hedanol, Daleron, Depon, Dexamol, Dolex.

Similarities of generic and brand name drugs

- A generic drugs/ medicine of a brand name drug must have the same:
- Active ingredient(s),
- Strength,
- Indications,
- Dosage form such as tablet or syrup or suspension or emulsion,

- Route of administration such as oral or IV,
- Exact manufacturing standards as the brand-name drug,
- Safe and effective as brand name drug,
- Label as the brand-name drug.

GHI AND UNDERNOURISHMENT

GS-II HEALTH

Context

- The value of a key indicator used in the **Global Hunger Index** is 'inflated' as only **3.9% of the anganwadi children were found to be undernourished**, the Union Government said.

About

- The GHI 2021 ranked **India at 101 out of 116 countries.**
- With a score of 27.5, India has a level of hunger that is serious.

| ≤9.9 low | 10.0–19.9 moderate | 27.5 20.0–34.9 serious | 35.0–49.9 alarming | ≥ 50.0 extremely alarming |

Global Hunger Index

- The Global Hunger Index (GHI) is a tool that measures and tracks hunger globally as well as by region and by country, prepared by **European NGOs of Concern Worldwide and Welthungerhilfe**. The GHI is calculated annually.
- The index is based on four indicators — **under-nourishment, wasting, stunting and under-five mortality.**
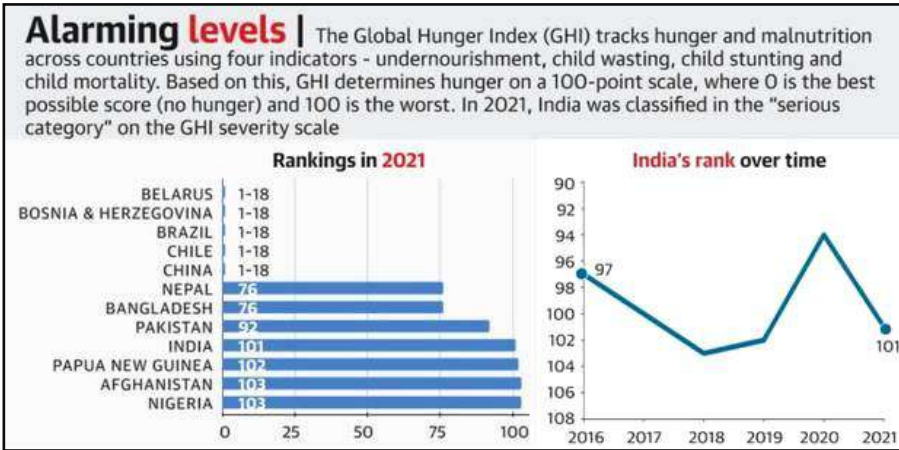
India's Performance

- Of these, India's performance is shown to deteriorate only for undernourishment, which is what the Government has challenged.
- Many individual countries have also achieved reductions in hunger since 2000, but in some countries hunger persists or has even worsened.

- According to FAO's data, which is used in the Index, the prevalence of **undernourishment in India rose from 14% in 2017-2019 to 15.3% in 2018-2020**.
- However, undernourishment and under-nutrition used as synonyms by the Government are treated as two different indicators by FAO and in the GHI.
- The Government has also alleged that there has been a **"selective approach adopted to deliberately lower India's rank"** by relying on higher values of indicators such as stunting and wasting from different datasets available.

Concluding thoughts

- Hunger is increasingly a processing, storage, supply chain and logistics challenge.
- India wastes <u>about 7% of its total annual food production and almost 30% of the fruits and vegetables</u> because of inadequate warehousing facilities and cold storages.
- In India, the National Centre for Cold-chain Development (NCCD) estimates that country has only 15% of the required temperature-control transportation facilities and less than 1% of warehouse facilities dedicated for transporting pre-conditioned agricultural produce.
- This lack of infrastructure means that only 4% of the country's food is moved through cold chains.
- There is a growing need for the design and development of more efficient integrated systems of food production, processing, preservation and distribution.
- **Some extremely important steps to overcome the zero hunger challenge:**
    o Developing and upgrading rural infrastructure;
    o training farmers in post-harvest practices that minimize losses;
    o integrating small scale enterprises into value chains;
    o organizing smallholder farmers into farmer producer organizations;
    o customized financial services;
    o investment in agricultural research; and
    o last-mile marketing channels.
- The above points are also important for ensuring **social equity, gender inclusiveness and reducing agriculture's carbon footprint.**
- Currently, we have a one-way movement of raw materials and a one-way movement of finished goods.
- This flow must be transformed into a two-way movement of commerce and healthy, nutritious food between the farmers and the consumers to address hunger and poverty in all its forms.

1. **UNDERNOURISHMENT:** the share of the population that is undernourished (that is, whose caloric intake is insufficient);

2. **CHILD WASTING:** the share of children under the age of five who are wasted (that is, who have low weight for their height, reflecting acute undernutrition);

3. **CHILD STUNTING:** the share of children under the age of five who are stunted (that is, who have low height for their age, reflecting chronic undernutrition); and

4. **CHILD MORTALITY:** the mortality rate of children under the age of five (in part, a reflection of the fatal mix of inadequate nutrition and unhealthy environments). [2]

Alarming levels | The Global Hunger Index (GHI) tracks hunger and malnutrition across countries using four indicators - undernourishment, child wasting, child stunting and child mortality. Based on this, GHI determines hunger on a 100-point scale, where 0 is the best possible score (no hunger) and 100 is the worst. In 2021, India was classified in the "serious category" on the GHI severity scale

Rankings in 2021

BELARUS	1-18
BOSNIA & HERZEGOVINA	1-18
BRAZIL	1-18
CHILE	1-18
CHINA	1-18
NEPAL	76
BANGLADESH	76
PAKISTAN	92
INDIA	101
PAPUA NEW GUINEA	102
AFGHANISTAN	103
NIGERIA	103

India's rank over time

VALNEVA VACCINE   GS-II HEALTH

Context

- Valneva SE, a French vaccine company, announced results from its Phase 3 trial of its inactivated Covid-19 vaccine candidate, VLA2001. They said that the vaccine was as effective as the Oxford/AstraZeneca vaccine.

About

- VLA2001 is **an inactivated, adjuvanted vaccine**.
- This means that it delivers the whole Sars-CoV-2 virus in an inactivated form.
- The virus is killed using chemicals, heat, or radiation.
- The dead virus cannot infect us but can still trigger an immune response.
- **Polio and flu vaccines are common examples of inactivated vaccines**. India's <u>Covaxin is also an inactivated vaccine.</u>

Types of vaccines	DNA and RNA	Live attenuated	Inactivated	Subunit	Viral vector
How it works	This vaccine uses DNA or RNA molecules to teach the immune system to target key viral proteins.	This is a weakened version of the actual virus.	An inactivated vaccine uses the whole virus after it has been killed with heat or chemicals.	This vaccine uses a piece of a virus' surface to focus your immune system on a single target.	This approach takes a harmless virus and uses it to deliver viral genes to build immunity.
Advantages	Easy and quick to design.	Stimulates a robust immune response without causing serious disease.	Safe because the virus is already dead and is easy to make.	Focuses the immune response on the most important part of the virus for protection and cannot cause infection.	Live viruses tend to elicit stronger immune responses than dead viruses or subunit vaccines.
Disadvantages	Never been done before. There are no licensed DNA or RNA vaccines currently in use.	May not be safe for those with compromised immune systems.	Not as effective as a live virus. Some previous inactivated vaccines have made the disease worse; safety for the novel coronavirus needs to be shown in clinical trials.	May not stimulate a strong response, other chemicals may need to be added to boost long-term immunity.	Important to pick a viral vector that is truly safe. An immune response to the viral vector could make the vaccine less effective.
Existing examples	• None	• Measles, Mumps and Rubella • Chickenpox	• Polio	• Pertussis • Hepatitis C • Human Human papillomavirus (HPV)	• Ebola • Veterinary medicine

NATIONAL FUND TO CONTROL DRUG ABUSE (NFCDA)

GS-II HEALTH

Context
- The Union Ministry of Social Justice and Empowerment has recently recommended that the National Fund to Control Drug Abuse be used to carry out de-addiction programmes, rather than just policing activities.

About
- The fund was **created in 1989** in accordance with a provision of the Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985.
- The broad parameters of funding, scope, procedure, evaluation and monitoring mechanism for managing the funds of NFCDA have been prescribed in the Narcotic Drugs and Psychotropic Substances (National Fund for Control of Drug Abuse) Rules, 2006.
- The fund is **managed by Department of revenue, Ministry of Finance**.

NDPS Act
- The **Narcotic Drugs and Psychotropic Substances Act, 1985**, commonly referred to as the NDPS Act, is an Act of the Parliament of India that prohibits a person the production/manufacturing/cultivation, possession, sale, purchasing, transport, storage, and/or consumption of any narcotic drug or psychotropic substance.
- It came into force in 1985. The NDPS Act has since been amended thrice — in 1988, 2001 and 2014.
- The Act extends to the whole of India and it applies also **to all Indian citizens outside India** and to all persons on ships and aircraft registered in India.
- The **Narcotics Control Bureau was set up under the act with effect from March 1986**.
- The Act is designed to fulfill India's treaty obligations under the Single Convention on Narcotic Drugs, Convention on Psychotropic Substances, and United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances.

Key Pointers
- **India had no legislation regarding narcotics until 1985.**
- Cannabis smoking in India has been known since at least 2000 BC[1] and is **first mentioned in the Atharvaveda.**
- Cannabis and its derivatives (marijuana, hashish/charas and bhang) were legally sold in India until 1985, and their recreational use was commonplace.

- The United States began to campaign for a worldwide law against all drugs, following the adoption of the **Single Convention on Narcotic Drugs in 1961.** However, India opposed the move.
- American pressure increased in the 1980s, and in 1985, the **Rajiv Gandhi government enacted the NDPS Act, banning all narcotic drugs in India.**

PM AYUSHMAN BHARAT HEALTH INFRASTRUCTURE MISSION — GS-II HEALTH

Context
- Prime Minister Narendra Modi launched the PM Ayushman Bharat Health Infrastructure Mission.

About
- It will seek to address three critical gaps in India's public health sector: augmenting health facilities for treatment; setting up of Integrated Public Health labs for diagnosis of disease, and expansion of existing research institutions that study pandemics.
- It is meant to be implemented in each district of the country.
- The government will run the scheme from the financial **year 2021-22 to 2025-26.**

Components
- To establish comprehensive surveillance of infectious diseases.
- Creation of comprehensive diagnostics and treatment facilities.
- Comprehensive pandemic research.

Ayushman Bharat
- Ayushman Bharat is a flagship scheme of Government of India, was **launched as recommended by the National Health Policy 2017,** to achieve the vision of Universal Health Coverage (UHC).
- It is a national public health insurance fund of the Government of India that aims to **provide free access to health insurance coverage for low income earners in the country**.
- Roughly, the bottom 50% of the country qualifies for this scheme.
- It is a **centrally sponsored scheme and is jointly funded by both the union government and the states.**
- By offering services to 50 crore (500 million) people it is the world's largest government sponsored healthcare program.
- This initiative has been designed to meet Sustainable Development Goals (SDGs) and its underlining commitment, which is to "leave no one behind."

Benefits
- It covers all hospitalisation expenses with cashless transactions to beneficiaries.
- Accommodation during hospitalisation.
- Pre and post-hospitalisation costs.
- Any complications arising during the treatment.
- Can be used by all family members.
- No cap on family size, age or gender.
- Pre-existing conditions are included from day one.

Eligibility
Rural
- Household with no adult/male/ earning member within the age group of 16-59 years
- Families living in one room with Kuccha Kuccha walls and roof
- Families with no members within the age group of 16-59 years
- Household without a healthy adult member and one disabled member
- Manual scavenger families
- Landless households earning a major part of their family income from manual labour

Urban
- Domestic worker, Beggar, Ragpicker, Artisans, Vendors etc

Who is not entitled to avail coverage under the Ayushman Bharat Yojana?
- The following categories of entities are not covered under the Ayushman Bharat Yojana:
  - People who own a vehicle like a two-wheeler, three-wheeler, or a car
  - Government employees
  - People whose monthly income is more than Rs 10,000
  - Those who have farming machinery and equipments
  - Those who live in properly build houses
  - Those who hold a Kisan card
  - Those owing a motorized fishing boat
  - Those owing an agriculture land of more than 5 acres

- **People employed in government-run non-agricultural enterprises**
- **People who have refrigerators and land phones.**

## HEALTH INSURANCE FOR INDIA'S MISSING MIDDLE

GS-II HEALTH

Context
- NITI Aayog released a comprehensive report titled Health Insurance for India's Missing Middle, which brings out the gaps in the health insurance coverage across the Indian population and offers solutions to address the situation.

Findings
- The Ayushman Bharat **- Pradhan Mantri Jan Arogya Yojana**—a flagship scheme towards Universal Health Coverage, and State Government extension schemes—provides comprehensive hospitalization cover to the bottom 50% of the population.
- Around 20% of the population is covered through social health insurance, and private voluntary health insurance primarily designed for high-income groups.

Figure 5: Schematic for Missing Middle population segment uncovered by health insurance

- The remaining 30% of the population, devoid of health insurance, is termed as the "missing middle".
- The 'missing middle' is a broad category which lacks health insurance, positioned between the deprived poorer sections, and the relatively well-off organized sector.
- The missing middle contains multiple groups across all expenditure quintiles and is spread across both urban and rural areas.
- The report highlights the need for designing a low-cost comprehensive health insurance product for the missing middle.
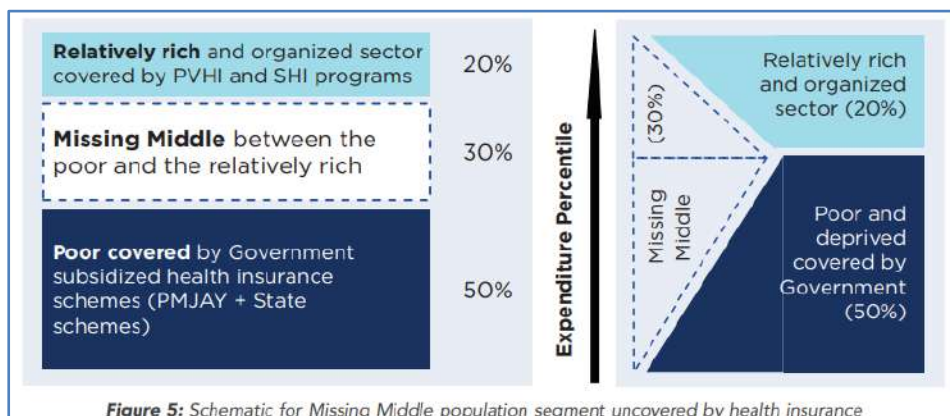
Catalysts to the issue
- India's decentralized health governance gives rise to the fragmentation of insurance schemes, contributing to systemic inefficiency and inequity.
- India's health sector is characterized by low Government expenditure on health, high out of-pocket expenditure (OOPE), and low financial protection for adverse health events.
- India's Government spending on health at 1.5% of GDP is among the lowest in the world.
- Overburdened public hospitals often divert individuals to seek treatment in the costlier private sector.
- Almost 60% of all hospitalizations, and 70% of out-patient services are delivered by the private sector- NSSO.

Way ahead
- Targeting the missing middle segment will require a different outreach strategy which distinctly focuses on this population, and their sub-segments.
- First, the Government has a key role to play in increasing consumer awareness and building consumer confidence in health **insurance through information, education, and communication (IEC), campaigns,** especially in hospitals
- Second, the Government has a role to play in ensuring standardization and improving simplicity of the product, to ensure consumer protection through a guaranteed basic minimum package of services.
- A **slightly modified version of the standardized Aarogya Sanjeevani insurance product**, will help increase the update amongst the missing middle.
- Third, the Government can help improve the product's uptake by **lowering the distribution and operational costs.**
- Fourth, the Government should build consumer confidence through **swift grievance redressal mechanisms, and robust auditing procedures.** They can lead to a virtuous cycle of trust where satisfied health insurance customers recommend it to other, thereby increasing the size of the risk pool.
- Finally, the Government can directly increase enrolment or reduce costs by subsidizing the poorest sections of the missing middle population, and/or using the PMJAY infrastructure to offer a voluntary contributory enrolment.

Implementation Pathway
1. Expanding private voluntary insurance through commercial insurers
2. Allowing voluntary contribution using NHA-PMJAY infrastructure or ESIC scheme

3. Expansion of coverage under the PMJAY scheme
- A combination of the three models, phased in at different times, can ensure coverage for the missing middle population.

Short-term
Expanding private voluntary insurance through commercial insurers
(1-2 years)

1. Modified 'Arogya Sanjeevani' product launched with lower waiting periods and out-patient benefits.
2. Focusing on consumer awareness and group enrolments builds a large and diversified risk pool with low premiums.

Requires further discussions with insurers & IRDAI

Medium-Term
Allowing voluntary contribution using NHA-PMJAY infrastructure or ESIC scheme
(2-5 years)

1. Allowing voluntary contribution using PMJAY's infrastructure and the ESIC scheme, if, and when the supply-side and utilization of schemes for existing beneficiaries improves.
2. Will improve competition, further increase risk-pooling, and potentially lower prices.

Long-Term
Expansion of coverage under the PMJAY for specific uncovered groups
(5+ years)

1. Review insurance coverage after 5-years of facilitating development of low-cost health insurance products through private insurance markets and Government purchasing agencies.
2. Expand fully subsidized coverage through PMJAY to specific uncovered segments of the missing middle based on socio-economic criteria.

Figure 10: Implementation pathway for expansion of health insurance coverage to the missing

Some other steps
- Since most of India's health system is privatized with loose regulation, it is important to strengthen state-level capacity to empanel and regulate private providers.
- Investing in health systems at the facility level is another key approach to **ensuring equitable service access and delivery across rural-urban and rich-poor divides.**
- More broadly, initiatives such as the National Digital Health Mission can also improve data management and transparency.
- In the longer term, rationalizing input costs through health technology assessments, exploring cross-subsidization and pooling across existing public health insurance schemes, and strategic purchasing to reduce wasteful spending can improve sustainability.
- A comprehensive health insurance product for the missing middle should include outpatient (OPD) benefits.

GENERAL STUDIES - III

| FREE TRADE AGREEMENT | *GS-III ECONOMY* |

Context

• India will most likely conclude the free trade agreement with UAE by March.

About Free Trade Agreement

• A Free Trade Agreement is an agreement between countries to reduce or eliminate barriers to trade. Trade barriers include tariff barriers like taxes and nontariff barriers like regulatory laws.
• Trade barriers include tariff barriers like taxes and nontariff barriers like regulatory laws.

Reasons behind FTA

• By eliminating tariffs and some non-tariff barriers, FTA **partners get easier market access** into one another's countries.
• **Exporters prefer FTAs to multilateral trade liberalization** because they get preferential treatment over non-FTA member country competitors.
• **Possibility of increased foreign investment** from outside the FTA.

Free Trade Agreement Pro and Cons

Criticism of FTA

• India's exports to FTA countries **has not outperformed overall export growth or** exports to rest of the world.
• FTAs **have led to increased imports and exports, although the** former has been greater.
• FTAs have **had a bigger impact on metals on the importing side** and textiles on the exporting side. Utilisation rate of FTAs by exporters in India is very low (between 5 and 25%).
• Diversification of India's export basket is more responsible for India's export surge than RTAs.
• Bilateral trade increased post signing of all the above FTAs
• As **imports from Korea, Japan and ASEAN have shot up after the respective agreements came into force,** India's trade deficit with these countries has increased since then. Only exports to Sri Lanka have increased much more than imports into India from Sri Lanka.
• Overall **trade deficit with ASEAN, Korea and Japan doubled.Quality of trade has also deteriorated under** India ASEAN FTA.
• In 2005, 98% of Sri Lankan exports availed the FTA route. This has declined to about 50% in recent years. On the other hand, only 13% of India's exports are routed through FTA.

Way Forward

• **Review and assess its existing FTAs** in terms of benefits to various stakeholders and changing trade patterns, before signing new ones.
• **Negotiate bilateral FTAs with countries** where trade complementarities and margin of preference is high.
• **Reduce compliance cost and administrative delays** is extremely critical to increase utilisation rate of FTAs.
• **Proper safety and quality standards should be set to avoid dumping** of lower quality hazardous goods into the Indian market. Circumvention of rules of origin should be strictly dealt with by the authorities.

| G7 DIGITAL TRADE PRINCIPLES | *GS-III ECONOMY* |

Context

• Recently, the Group of Seven (G7) wealthy nations agreed on a joint set of principles to govern cross-border data use and digital trade.
• The deal is a first step in reducing trade barriers, and could lead to a common rulebook of digital trade. Earlier, India attended the 47th G7 Summit as a guest country.

Principles of G7 Trade

- **Open Digital Markets:** Digital and telecommunications markets should be competitive, transparent, fair, and accessible to international trade and investment.
- **Cross Border Data Flows**: To harness the opportunities of the digital economy and support the trade of goods and services, data should be able to flow freely across borders with trust, including the trust of individuals and businesses.
- **Safeguards for Workers, Consumers, and Businesses:** Labour protections must be in place for workers who are directly engaged in or support digital trade, providing decent conditions of work.
- **Digital Trading Systems**: To cut red tape and enable more businesses to trade, governments and industry should drive forward the digitisation of trade-related documents.
- **Fair and Inclusive Global Governance:** Common rules for digital trade should be agreed and upheld at the World Trade Organization (WTO).
- These rules should benefit workers, consumers, and businesses in developing economies, as well as those in developed economies, while safeguarding each country's right to regulate for legitimate public policy objectives.

Significance of G7 Trade

- **Middle Ground:** The deal sets out a middle ground between highly regulated data protection regimes used in European countries and the more open approach of the United States.
- The **deal envisages removing unjustified obstacles to** cross-border data flows, while continuing to address privacy, data protection, the protection of intellectual property rights, and security.
- **Liberalise Digital Trade:** The agreement reached by the elite global group is considered to be significant as it could IiberaIize hundreds of billions of dollars of digital trade.
- **Enabling cross border data flows and clarifying the framework for** processing and storing data will be required to further expand the contribution of digital exports.

Associated Challenges

- The G7 countries **have raised concerns about situations where data localisation** requirements are being used for protectionist and discriminatory purposes.
- The statement assumes significance as India has been contemplating measures for data localisation.
- Recently, **India has scored 90.32% in UNESCAP Global Survey on Digital and Sustainable** Trade Facilitation.
- In 2018, the economic value of digital trade-enabled benefits to the Indian economy is estimated to be worth up to USD 35 billion.

Data Localization

- About: Data localisation is the **practice of storing data on any device that is physically present within the borders of the country w**here the data is generated. As of now, most of this data is stored, in a cloud, outside India.
- Localisation mandates that companies collecting critical data about consumers must store and process them within the borders of the country.

Advantages of Data Localization

- **Secures citizen's data and provides data privacy and data** sovereignty from foreign surveillance. Example - Facebook shared user data with Cambridge Analytica to influence voting.
- **Unfettered supervisory access to data will help Indian law** enforcement ensure better monitoring.

Disadvantages of Data Localization

- **Maintaining multiple local data centres may lead to significant investments** in infrastructure and higher costs for global companies.
- **Splinternet or 'fractured internet' where the domino** effect of protectionist policy can lead to other countries following suit.

Indian Scenario

- Recently, the Reserve Bank of India (RBI) barred three foreign card payment network firms from taking new customers on board over the issue of storing data in India.
- India is contemplating an umbrella legislation on data protection, the Personal Data Protection Bill, 2019.
- As per the bill, the Central Government shall notify categories of personal data as critical personal data that shall only be processed in a server or data centre located in India.
- The Justice BN Srikrishna committee has recommended setting up of a data protection authority and placing restrictions on

cross-border data flows.

- India is also opposed to joining any global deal on e-commerce with the Prime Minister refusing to sign the Osaka Track, an overarching framework promoting cross-border data flow, at the recently held G-20 summit.

Way Forward

- **Global Cyber Security Framework:** Good regulatory frameworks are essential to address issues such as privacy and cyber security.
- Thus, on the side-line of negotiations of free **flow to digital trade, a global framework for cyber security should be established.**
- **Removing Bureaucratic Hurdles**: To maximise the positive impact of digital trade, issues such as undue red tape on digital enterprises, restricted cross-border data flows, and imbalanced copyright and intermediate liability regulations, need to be addressed.
- **Role of India:** There is an opportunity for India to play a leading role, not only at home, but also abroad in pushing for facilitative digital trade rules in its various bilateral and multilateral trade negotiations.

OIL PRICING

GS-III   ECONOMY

Context

- Oil Prices are continuously on rise in India.

Fixing of Oil Prices

- Generally, the Organization of the **Petroleum Exporting Countries PE use** to work as a cartel and fix prices in a favourable band.
- OPEC is **led by Saudi Arabia**, which is the largest exporter of crude oil in the world (single-handedly exporting 10% of the global demand).
- **OPEC has a total of 13 Member Countries viz. Iran, Iraq, Kuwait{United Arab Emirates (UAE), Saudi Arabia, Algeria, Libya**, Nigeria, Gabon, Equatorial Guinea, Republic of Congo, Angola, and Venezuela.
- OPEC could **bring down prices by increasing oil production** and raise prices by cutting production.
- The global oil pricing mainly depends upon the partnership between the global oil exporters instead of a well-functioning competition.
- **Cutting oil production or completely shutting down an oil well is a difficult decision, because restarting it is immensely costly** and complicated.
- Moreover, if a country cuts production, it risks losing market share if other countries do not follow the suit.
- Recently, **OPEC has been working with Russia, as OPEC+** to fix the global prices and supply.
- In 2016, OPEC allied with other top non-OPEC oil-exporting nations to form an even more powerful entity named OPEC+ or OPEC Plus.

Reasons for High Prices

- **Slow Production:** Key oil producing countries have kept crude oil supplies on a gradually increasing production schedule despite a sharp increase in global crude oil prices.
- OPEC+ had agreed to sharp cuts in supply in 2020 in response to Covid-19 global travel restrictions in 2020 but the organisation has been slow to boost production as demand has recovered.
- **Supply Side Issues**: Supply side issues in the US including disruptions caused by hurricane Ida and lower than expected natural gas supplies from Russia amid increasing demand in Europe have raised the prospect of natural gas shortages in the winter.

Impact on India

- **Current Account Deficit**: The increase in oil prices will increase the country's import bill, and further disturb its current account deficit (excess of imports of goods and services over exports).
- **Inflation:** The increase in crude prices could also further increase inflationary pressures that have been building up over the past few months.
- **Fiscal Health:** If oil prices continue to increase, the government shall be forced to cut taxes on petroleum and diesel which may cause loss of revenue and deteriorate its fiscal balance.
- The growth slowdown in the last two years has already resulted in a precarious fiscal situation because of tax revenue shortfalls.
- **The revenue lost will erode the government's ability to spend** or meet its fiscal commitments in the form of budgetary

transfers to states, payment of dues and compensation for revenue shortfalls to state governments under the Goods and Services Tax (GST} framework.

- **Economic Recovery:** Although the rising prices have impacted the world, India is particularly at a disadvantage as any increase in global prices can affect its import bill, stoke inflation and increase its trade deficit, which in turn will slow its economic recovery.
- India and other oil importing nations have called on OPEC+ **to boost oil supply faster, arguing that elevated crude oil prices could undermine the recovery of the** global economy.
- Natural Gas Price: The increase in gas prices has put upward pressure on the price of both Compressed Natural Gas (CNG) used as a transport fuel and Piped Natural Gas (PNG) used as a cooking fuel.

Difference between Brent and WTI

- Origin: Brent crude oil originates from oil fields in the North Sea between the Shetland Islands and Norway.
- **West Texas Intermediate (WTI) is sourced from US oil fields,** primarily in Texas, Louisiana, and North Dakota.
- Light and Sweet: Both oils are relatively light, but Brent has a slightly higher API gravity, making WTI the lighter of the two.
- American Petroleum Institute (API) gravity is an indicator of the density of crude oil or refined products.
- WTI **with a lower sulphur content (0.24%) than Brent (0.37%),** is considered "sweeter".
- Benchmark Prices: Brent crude price is the international benchmark price used by OPEC while WTI crude price IS a benchmark for US oil prices.
- Since India imports primarily from OPEC countries, Brent is the benchmark for oil prices in India.
- Cost of Shipping: Cost of shipping for Brent crude is typically lower, since it is produced near the sea and it can be put on ships immediately.
- **Shipping of WTI is priced higher since** it is produced in landlocked areas like Cushing, Oklahoma w here the storage facilities are limited.

REGULATION OF MICROFINANCE   *GS-III   ECONOMY*

Context

- Reserve Bank of India (RBI) **published a "Consultative Document on Regulation of Microfinance".**

Objective

- To promote the **financial inclusion of the poor and competition among lenders**, the likely impact of the recommendations is unfavorable to the poor.
- If implemented, they will **result in an expansion of microfinance lending by private financial institutions, in the provision of credit at high rates** of interest to the poor, and in huge profits for private lenders.

Recommendation

- The current ceiling on rate of interest charged by **non-banking finance company-microfinance institutions (NBFC-MFis) or regulated private microfinance companies needs to be done away with, as it is biased against one lender (NBFC-MFis)** among the many (commercial banks, small finance banks, and NBFCs).
- It proposes that **the rate of interest be determined by the governing board of each agency, and assumes that "competitive forces"** will bring down interest rates.
- Not only has the **RBI abandoned any initiative to expand low-cost credit through public sector commercial banks to the rural poor**, the bulk of whom are rural women (as most loans are given to members of women's groups), but, in addition, it also proposes to de-regulate the rate of interest charged by private microfinance agencies.
- The 'maximum rate of interest rate charged by an NBFC-MFI shall be the lower of the following: **the cost of funds plus a margin of 10% for larger MFIs (a loan portfolio of over 7100 crore) and 12% for others;** or the average base rate of the five largest commercial banks multiplied by 2.75'.
- In June 2021, the average base rate announced by the RBI was 7.98%. A quick look at the website of some Small Finance Banks (SFBs) and NBFC- MFis showed that the "official" rate of interest on microfinance was between 22% and 26% — roughly three times the base rate.

Need for Rural Households

- Microfinance is becoming **increasingly important in the loan portfolio of poorer rural households.**
- In a study of two villages from southern Tamil Nadu, done by the Foundation for Agrarian Studies, we found that a **little more than half of the total borrowing by households resident in these two villages was of unsecured or collateral-free loans** from private financial agencies (SFBs, NBFCs, NBFC-MFls and some private banks).

- There was **a Clear differentiation by caste and socio-economic class in terms of source and purpose of borrowing**.
- First, unsecured **microfinance loans from private financial agencies were of disproportionate significance to the poorest** households — to poor peasants and wage workers, to persons from the Scheduled Castes and Most Backward Classes.
- Second, **these microfinance loans were rarely for productive activity and almost never for any group-based enterprise**, but mainly for house improvement and meeting basic consumption needs.

POWER SECTOR REFORM

GS-III   ECONOMY

Context

- India **could be on the verge of a power crisis as the stock of coal** held by the country's thermal power plants has hit critically low levels.
- Many power plants are operating with zero reserve stock or with stocks that could last just a few days.

Issues of the Power Sector

- The **Distribution Companies or DISCOMs** are in an extremely bad shape.
- **Non-performing assets in power generating companies or GENCOs** are mounting.
- The data released in the Power Finance Corporation Report on Performance of Power Utilities 2019-20, reveals that the GENCOs have a receivable of more than Rs 2.16 lakh crore from DISCOMs in 2019-20.
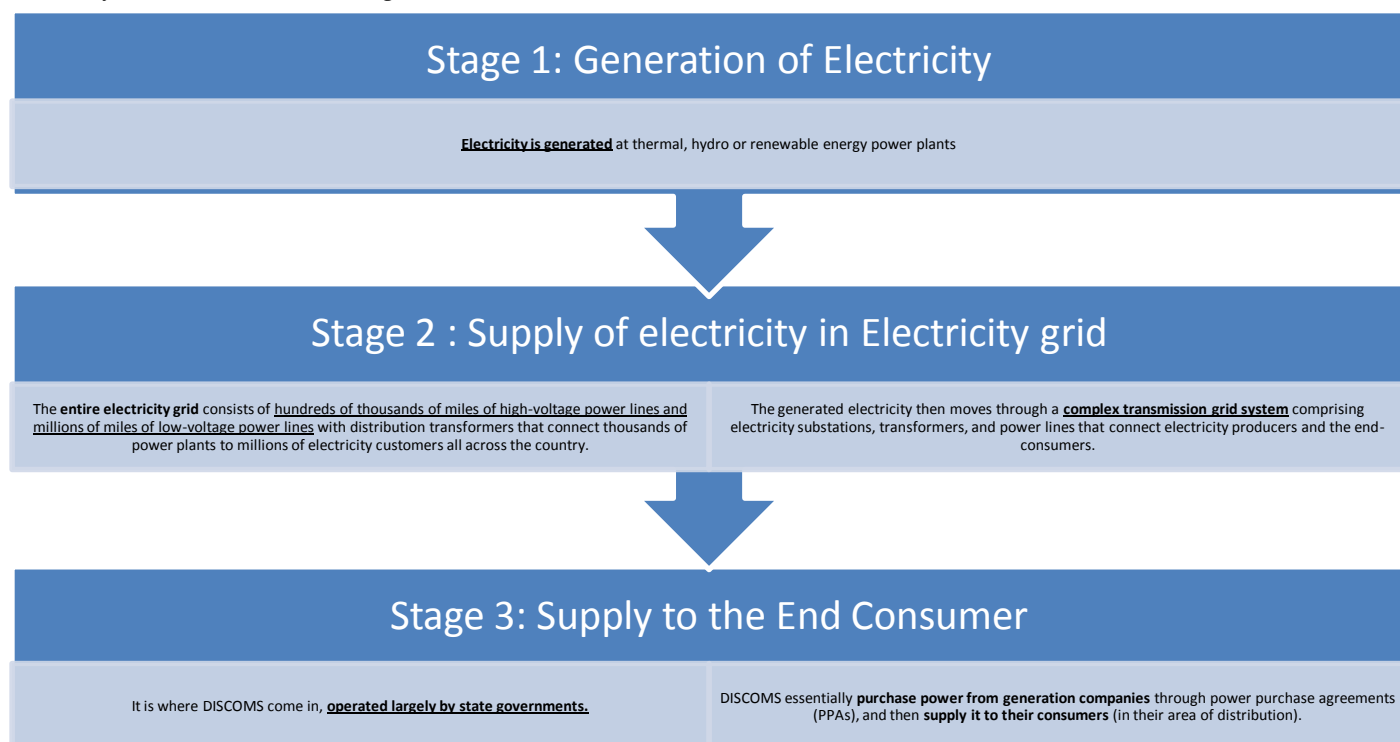
> **Key Words**
> - **Average per-unit cost of supply:** It is the cost incurred by the discom in procuring electricity from power generators and further distributing it.
> - **Average revenue realised:** It is the cost received by the discom after selling it to final consumers.

Performance of Discoms in recent years

- The Aggregate Technical & Commercial (AT&C) losses have come down from 23.5% in FY 2016-17 to 21.83% in FY 2019-20.
- The gap between average cost of supply (ACS) and average revenue realized (ARR) narrowed down to Rs 0.28/kWh in 2019-20 from Rs 0.33/kWh in 2016-17.
- The annual Profit after Tax (PAT) figures being negative have also shown improvement from Rs.33, 894 Cr in FY 2016-17 to Rs.32, 898 Cr in FY 2019-20.

About the working of electricity sector

Electricity Sector works in three stages.

Stage 1: Generation of Electricity

Electricity is generated at thermal, hydro or renewable energy power plants

Stage 2 : Supply of electricity in Electricity grid

The **entire electricity grid** consists of hundreds of thousands of miles of high-voltage power lines and millions of miles of low-voltage power lines with distribution transformers that connect thousands of power plants to millions of electricity customers all across the country.	The generated electricity then moves through a **complex transmission grid system** comprising electricity substations, transformers, and power lines that connect electricity producers and the end-consumers.

Stage 3: Supply to the End Consumer

It is where DISCOMS come in, **operated largely by state governments.**	DISCOMS essentially **purchase power from generation companies** through power purchase agreements (PPAs), and then **supply it to their consumers** (in their area of distribution).

Issues with Discoms

Cross Subsidization

- In India, electricity price for certain segments such as agriculture and the domestic category (what we use in our homes)

is cross-subsidized by the industries (factories) and the commercial sector (shops, malls).

- This affects the competitiveness of industry. While the government has started a process through which the extent of cross-subsidization is gradually being reduced, this is easier said than done as states do not like to increase tariffs for politically sensitive constituents, such as farmers.

Aggregate Technical and Commercial (AT&C) Losses

- The discoms suffer Aggregate Technical and Commercial (AT&C) Losses.
- Technical Loss: It is due to the flow of power in transmission and distribution system. Almost 25% of the power is lost, and never gets billed.
- Commercial Loss: It is due to the theft of electricity, deficiencies in metering, etc.

Gap between Revenue realization and cost of supply

- The gap between the average per-unit cost of supply (ACS) and average revenue realized (ARR).
- The remaining 75% is sold at prices that are much lower than the discoms' procurement costs.
- In almost every state, the increase in tariff rates is avoided because of the associated political costs.
- Therefore, political unwillingness is at the heart of commercial losses.

Debt of Discoms and Associated Problems:

- If we compare the 32 UDAY states and UTs between FY 2019 and FY 2020, the Power Finance Corporation (PFC) **Report shows that while the average AT&C losses improved slightly from 22.4 per cent to 21.9 per cent, 14 of them were actually worse off**.
- Consequently, **most of the DISCOMs are still in trouble as fundamental issues have not been addressed.**
- The **DISCOMs do not have money for entering into new PPA**s even though there is demand for power.
- **India's per capita consumption is still one-third of world** average.
- Ironically, on account of the pricing structure, **most of the DISCOMs lose more as they sell more.**
- DISCOMs owe a huge amount to GENCOs and these are mounting by the day.
- The Plant Load Factor (PLF) of GENCOs is also getting adversely impacted because DISCOMs are unable to articulate the demand through new PPAs.
- GENCOs are in huge debt and debt servicing is becoming extremely difficult.
- A large part of this debt is likely to become Non-Performing Assets (NPA).
- This in turn will impact the banking industry that is already reeling under the burden of NPAs.

Way Forward

- Coal production **will have to grow at the rate (8-9 per cent) it** grew during 2014-16. It can be done now as well by following the same strategy.
- The Union **government will have to play the role of a facilitator by enabling and** ensuring faster clearances.
- At the central level, **they would primarily relate to environment and forest**.
- Need to bring effective changes in the power sector too.

Government Steps to improve the functioning of Discoms

- To tide over the liquidity problems of increasing DISCOM payables to Gencos arising out of the outbreak of COVID-19 lockdowns, the Government **of India has launched a Liquidity Infusion scheme under which DISCOMs are already availing** benefits under the scheme tied to reforms.
- The Government has **also incentivized the DISCOMs to transform, reform and perform by linking 0.5% of the Additional** borrowings linked to power sector reforms from FY 2022 to FY 2024.
- Apart from the above, **the Government of India has also launched the Revamped Reforms-Based Results-Linked Scheme, which** allows the States to create infrastructure tied to initiation of Reforms and achievement of Results for improving their financial sustainability and operational efficiencies.
- This scheme would be in operation till FY 2025-26, and includes a major component of prepaid Smart metering.

About Reforms Based Results Linked Scheme

Targets:

- Reduction of AT&C (aggregate technical & commercial) losses to pan-India levels of 12-15% by 2024-25.
- Reduction of ACS-ARR gap (i.e. between the total cost of electricity and revenues generated from supplying power) to zero by 2024-25.
- Developing institutional capabilities for modern discoms.
- Improvement in the quality, reliability, and affordability of power supply to consumers through a financially sustainable and operationally efficient Distribution Sector.

- Implementation of the Scheme would be based on the action plan worked out for each state rather than a "one-size-fits-all" approach.

Key Objectives:

- The Scheme provides for annual appraisal of the DISCOM performance against predefined and agreed upon performance trajectories.
- The Scheme has a major focus on improving electricity supply for the farmers and for providing daytime electricity to them through solarization of agricultural feeders.
- A key feature of the Scheme is to enable consumer empowerment by way of prepaid Smart metering to be implemented in Public-Private-Partnership (PPP) mode.
- it is also proposed to take up System metering at Feeder and Distribution Transformer (DT) level with communicating feature simultaneously in PPP mode.

WAY AHEAD

- State-run Coal India and NTPC Ltd are working to raise output from mines
- The government is trying to bring more mines on stream to boost supply
- India will need to amp its imports, despite the financial cost. From Indonesia for instance, the price rose from \$60/tonne in March to \$200/tonne in September
- However, supplies have been tight with global coal prices rise

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COAL CRISIS

GS-III ECONOMY

Context

- India could be on the verge of a power crisis as the stock of coal held by the country's thermal power plants has hit critically low levels.
- Many power plants are operating with zero reserve stock or with stocks that could last just a few days.
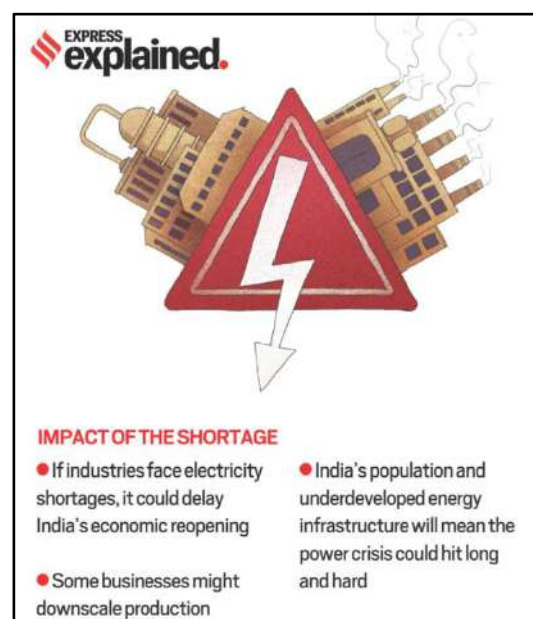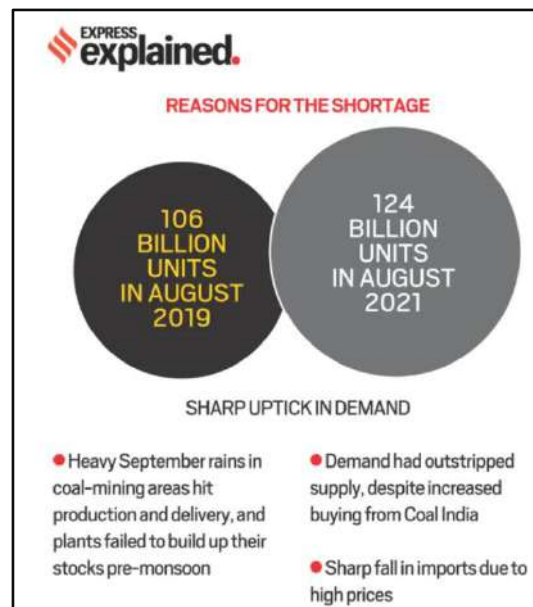
Extent of Crisis

- **India's 135 thermal power plants overall had on average coal stock t**hat would last just four days.
- In all, **112 of the 135 power plants are operating with stocks that are at critical or super-critical levels**.
- The government usually mandates the power plants to hold stocks that would last at least two weeks.
- India relies on coal to meet over 70% of its power needs, and Coal India Limited (CIL) supplies over 80% of the total coal.
- The current coal crisis comes amid a broader energy crisis across the world with the prices of natural gas, coal and oil rising sharply in the international market.

EXPRESS explained.

REASONS FOR THE SHORTAGE

106 BILLION UNITS IN AUGUST 2019

124 BILLION UNITS IN AUGUST 2021

SHARP UPTICK IN DEMAND

- Heavy September rains in coal-mining areas hit production and delivery, and plants failed to build up their stocks pre-monsoon
- Demand had outstripped supply, despite increased buying from Coal India
- Sharp fall in imports due to high prices

Reason behind Coal Crisis

- The current crisis in the availability of coal has **been the result of lackluster domestic production and a sharp drop in imports over the last few years.**
- Domestic production peaked at 12.80 exajoules (EJ) worth of coal in 2018.
- At the same time, the **amount of coal imported from other countries to meet domestic demand, too, has dropped significantly**. Coal imports have dropped from the peak of 6.46 EJ in 2016 to 4.22 EJ in 2020.
- **Populist politics has ensured that the price that many consumers pay** for power is not commensurate with the production costs. In FY19, for instance, the revenues of distribution companies covered only about 70% of their total costs.
- According to the credit rating agency ICRA, the **consolidated debt of public sector distribution companies is expected to hit ₹ 6 trillion in FY22**.

Factors for Insufficient Supply

- flooding in coal-mining areas,
- transport issues,

EXPRESS explained.

IMPACT OF THE SHORTAGE

- If industries face electricity shortages, it could delay India's economic reopening
- Some businesses might downscale production
- India's population and underdeveloped energy infrastructure will mean the power crisis could hit long and hard

- labor disruptions in major coal-mining countries
- the sudden rise in power demand as the economy revives from the pandemic.
- According to the government, indebted power generators and distributors owe over ⬜21,000 crore to CIL. So, overall, there is very little financial incentive that major producers across the supply chain, including miners, possess to ramp up production.

Way Forward

- India and China, **the top two consumers of coal in the world**, are expected to further increase production of fossil fuels.
- The **Indian government has been pushing CIL to ramp up production** to meet the rising demand and cut down on the country's reliance on imported coal. However, it is expected to ease restrictions on imported coal in the near future to tide over the crisis.
- The **government last week mandated the thermal power plants to blend imported coal with domestic coal up to a limit of 10%.**
- with coal selling at high prices in the international market and CIL unable to meet production targets, many power generators may be unable to increase their output unless they are allowed to price their output freely.

EASE OF DOING BUSINESS CONTROVERSY   GS-III ECONOMY

Context

- Recently, Ease of Doing Business has been in the news as it has been tweaked for political reasons.
- In August 2020, the World Bank suspended its EoDB rankings after finding some "data irregularities".
- In particular, it was alleged that the EoDB rankings were tweaked to inflate the ranks for China (in EoDB 2018) and Saudi Arabia, UAE and Azerbaijan (EoDB 2020).

About Ease of Doing Business

- The EoDB **rankings were started in 2002 to rank countries on a number of parameters to indicate how easy or difficult it** is for anyone to do business in a country.
- Each year, the EoDB rankings mapped whether, and by how much, a country had improved on a number of big and small parameters, such as how long it takes to start a business, or how costly it is to get a construction permit, or how many procedures one has to go through to enforce a contract etc.
- It was released by World Bank.

Significance of Ease of Doing Business

- Billions of dollars of **investments started becoming predicated on where a country stands on EoDB and whether it is improving or worsening.**
- It also **acquired massive political significance as leaders in different countries started using EoDB rankin**gs to either claim success or berate the existing government.

Way to Improve Ease of Doing Business

- Don't ignore the government functions that provide essential public goods to the private sector: transport and communications infrastructure, a skilled workforce, law and order, etc.
- Doing Business covers a diverse array of indicators that often have little meaning when aggregated with arbitrary weights. For some indicators, less is clearly better (e.g., delays in registering a business), while for others, optimal policy is far less clear (e.g., the optimal corporate tax rate).
- **Do not rank countries on their tax rates. From a societal standpoint, collecting taxes is necessary,** and thus lower tax rates are not necessarily better.
- **Eliminate the indicators "Protecting Minority Shareholders" and "Resolving Insolvency."**
- **Make the "Contracting with Government" indicator more relevant.**
- Restore and **improve the "Employing Workers" indicator, but do not rank countries based on this information.**
- Improve the transparency and oversight of Doing Business.

DISINVESTMENT   GS-III ECONOMY

Context

- PSU Air India has been successfully disinvested after a long haul.

Background

- Disinvestment is the action of an organization or government selling or liquidating an asset or subsidiary. Disinvestment also refers to capital expenditure reductions, which facilitate the re-allocation of resources to more productive areas within an organization or government-funded project.
- Disinvestment is **when governments or organizations sell or liquidate assets or subsidiaries**.
- Disinvestments **can take the form of divestment or a reduction of capital expenditures (CapEx).**
- Disinvestment is carried out for a variety of reasons, such as strategic, political, or environmental
- Disinvestment is primarily a money-raising exercise. The proceeds of disinvestment are treated as non-debt creating capital receipts.

Challenges in disinvestment

- Government shareholding in PSUs is a public **asset which should not be liquidated to meet the immediate needs.**
- **PSUs contribute to public finances through dividends and disinvestment** can reduce this important source of finance.
- PSUs **act as a check on private enterprises and safeguard the wider public interests in the market. For example**, in the absence of PSUs, private enterprises may form a cartel.
- When the **government goes for a strategic sale/privatization, there are chances of a PSU being sold o at a lower value to a private entity** which can be against the larger public interest.

Modes of Disinvestment

- **Initial Public Offering (IPO):** an offer of shares by an unlisted PSU to the public for the first time.
- **Follow-on Public Offering (FPO):** also known as Further Public Offering, it's an offer of shares by a listed PSU.
- **Offer for sale (OFS):** shares of a PSU are auctioned on the platform provided by the stock exchange. This mode has been used extensively by the government since 2012.
- **Institutional Placement Programme (IPP):** under this, only selected financial institutions are allowed to participate and the government stake is offered to only such institutions. E.g., mutual funds, insurance, and pension funds such as LIC etc.
- **Cross-holdings:** in this method, one listed PSU takes up the government stake in another listed PSU.
- **CPSE Exchange Traded Fund (ETF):** Through this route, the government can divest its stake in various PSUs across diverse sectors through a single offering. This mechanism allows the government to monetize its shareholding in those PSUs which form part of the ETF basket.

Disinvestment on Public sector undertaking

- Strategic Disinvestment: it is the **sale of a substantial portion of government shareholding, 50 percent or higher, in a PSU, along with the transfer** of management control.
- Disinvestment- Government sells its shares worth less than 49%.
- Privatization: it's a type of strategic sale in which the government divests its entire shareholding, along with the transfer of management control, to a private entity.

DIPAM

- The Department of Disinvestment was set up as a separate Department on 10th
- December, 1999 and was later renamed as Ministry of Disinvestment from 6th September, 2001.
- From 27th May, 2004, the Department of Disinvestment was one of the **Departments under the Ministry of Finance.**
- The Department of Disinvestment has been renamed as Department of Investment and Public Asset Management (DIPAM) from 14th April, 2016.

Vision of DIPAM

- Promote people's ownership of Central Public Sector Enterprises to share in their prosperity through disinvestment.
- Efficient management of public investment in CPSEs for accelerating economic development and augmenting Government's resources for higher expenditure
- List CPSEs on stock exchanges to promote people's ownership through public participation and improving efficiencies of CPSEs through accountability to its shareholders.
- To bring in operational efficiencies in CPSEs through strategic investment, ensuring their greater contribution to the economy.
- Adopt a professional approach for financial management of CPSEs in the national interest and investment aimed at expanding public participation in ownership of CPSEs.

GLOBAL MINIMUM TAX

Context
- A milestone global deal to ensure big companies pay a minimum tax rate of 15% and make it harder to avoid taxation has been agreed under leadership of OECD.
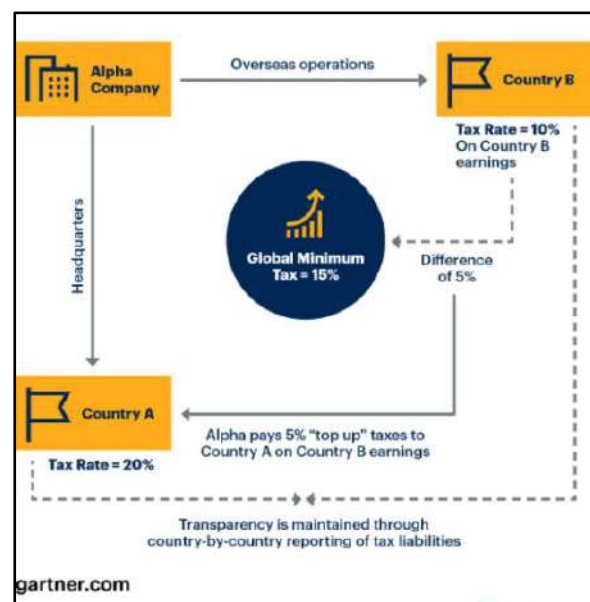
Background
- With budgets strained after the COVID-19 crisis, many **governments want more than ever to discourage multinationals from shifting** profits and tax revenues to low-tax countries regardless of where their sales are made.
- Increasingly, **income from intangible sources such as drug patents, software and royalties** on intellectual property has migrated to these jurisdictions, allowing companies to avoid paying higher taxes in their traditional home countries.
- The **minimum tax and other provisions aim to put an end to decades of tax competition** between governments to attract foreign investment.

Application
- The **global minimum tax rate would apply to overseas profits of multinational firms with 750 million** euros ($868 million) in sales globally.
- Governments could **still set whatever local corporate tax rate they want, but if companies pay lower rates in a particular** country, their home governments could "top up" their taxes to the 15% minimum, eliminating the advantage of shifting profits.
- A second track of the overhaul would allow countries where revenues are earned to tax 25% of the largest multinationals' so-called excess profit – defined as profit in excess of 10% of revenue.

A look at how the global minimum tax will work

that go untaxed or lightly taxed in one of the world's tax havens, their home country will impose a top-up tax that will bring the rate to 15%

- Out of the 140 countries involved, 136 supported the deal. Kenya, Nigeria, Pakistan and Sri Lanka have abstained for now

- According to some developing countries and advocacy groups, the 15% rate is too low and leaves far too much potential tax revenue on the table

SOURCE: AP

- Countries will legislate a global minimum corporate tax rate of at least 15% for companies with annual revenues more than $864 billion
- If companies have earnings

Economic impact and execution
- The agreement calls for countries to bring it into **law in 2022 so that it can take effect by 2023, an extremely tight timeframe given that previous international tax deals took years to** implement. Countries that have in recent years created national digital services taxes will have to repeal them.
- The OECD**, which has steered the negotiations, estimates the minimum tax will generate $150** billion in additional global tax revenues annually.
- **Taxing rights on more than $125 billion of profit will be additionally** shifted to the countries where they are earned from the low tax countries where they are currently booked.
- **Economists expect that the deal will encourage multinationals** to repatriate capital to their country of headquarters, giving a boost to those economies.
- However, various deductions and exceptions baked into the deal are at the same time designed to limit the impact on low tax countries like Ireland, where many US groups base their European operations.

ONE SUN ONE WORLD ONE GRID

GS-III ECONOMY

Context
- India and the **UK are likely to announce a joint declaration on "one sun, one world, one grid" — or OSOWOGat** the upcoming Conference of Parties (COP26).
- One Sun, One World, One Grid (OSOWOG) Project the UN Climate Change Conference, or COP26, is scheduled to be held between 31st October and 12th November in Scotland.
- The concept of OSOWOG is what the British have called a green grid.
- The idea behind the concept is a trans-national electricity grid supplying solar power across the globe.

About the Grid
- The vision behind the OSOWOG is 'The Sun Never Sets' and is a constant at some geographical location, globally, at any given point of time.
- OSOWOG initiative was **proposed by India** to set up **a framework for facilitating global cooperation which aims at building a global ecosystem of interconnected renewable energy resources** that can be easily shared.
- It has **been taken up under the technical assistance program** of the World Bank.
- The OSOWOG **plan may also leverage the International Solar Alliance (ISA), co-founded by India that has 80 countries as members**.
- With India in the middle, the solar spectrum can easily be divided into two broad zones, which are: Far East including countries like Myanmar, Vietnam, Thailand, Lao, Cambodia etc. Far West covering the Middle East and the Africa Region.
- Three Phases of the Plan:
  - First Phase: It will entail interconnectivity within the Asian continent.
  - Second Phase: It will add Africa.
  - Third Phase: It is about global interconnection.

Significance of the Project
- **Successful ambitious project**: It is obviously a very grand and ambitious project with a looming success.
- **Path breaking idea**: It is also clear that a new energy sector paradigm is needed as we are facing a huge inflection point in electricity generation and consumption.
- **Green benefits**: Potential benefits include widespread scale up in energy access, abatement in carbon emissions, lower cost and improved livelihoods.
- **Energy alternative**: With battery and storage technology becoming cheaper, electricity consumption at source end is a more feasible idea for solar power.

Issues with the Project
- Due to the development of advanced electricity storage technologies, it becomes less viable to follow the sun at any latitude or be dependent on its rays all the time.
- Large grids won't be necessary, as installing a micro grid is enough. Micro grids are individual solar panels that one can even set up at the rooftop of their house.
- The bigger the electricity grid the more vulnerable it is to accidents, natural disasters, cyber-attacks etc. that can disrupt the electricity supply.
- Most of the equipment for solar equipment like cells, panels etc. comes from China. This can be a hurdle as China will be least inclined in supporting a rival project like the One Sun One World One Grid
- There can be trust issues between the grid participants on account of sovereignty and local implications.
- Interconnection may open ways for other countries to muscle in on other economies and even likely bring them to a grinding halt.

Way Forward
- The move is the **key to future renewable-based energy systems globally because regional and international interco**nnected green grids can enable sharing and balancing of renewable energy across international borders.
- It allows **grabbing opportunities to learn quickly from global developments and share renewable energy resources** to reduce the global carbon footprint and insulate the societies from pandemics.
- Institution **building is key to fulfilling the ambitions of a multi-country grid project. In this context, ISA (International Solar Alliance**) can act as an independent supranational institution to take decisions about how the grid should be run and conflicts settled.

FORMALIZATION OF THE ECONOMY

Context
- Data released by the **Controller General of Accounts points towards a sustained improvement in central government finances**.
- At the end of the first five months (April-August) of the current financial year, the Centre's gross tax collections touched almost 40 per cent of the budgeted target — this is far in excess of what has been the trend so far.

Support to the Argument
- **Gross tax revenue in the first quarter of this fiscal shot up by an impressive 33% even over the same period in FY20** (before the pandemic struck). In stark contrast, nominal GDP in the June quarter grew only 2.4% from the pre-pandemic level.

Benefits of it
- This **seemingly-accelerated shift towards formalization has boosted the profitability of large companies,** leading to strong growth in the corporation tax collection.
- a **shift in wealth distribution away from the poor and the lower-middle class to the upper-middle class or the rich boosts income** tax mop-up because the tax regime is usually progressive.
- **Higher tax revenue of the government** has helped in increasing the government expenditure leading to kick start of the growth process.

Challenges to it
- Formalization may have been **a "forced" process, driven mostly by the Covid-induced extinction of several unorganized sector entities**, rather than an organic one.
- This has led to **greater consumer reliance on the formal sector, even though overall consumption demand remains sticky** due to large-scale income losses.
- Private final consumption expenditure shrank 11.9% in real and 2.7% in nominal terms in the June quarter from the pre-pandemic levels.
- Consumption **pattern has shifted more towards discretionary items, including luxury goods (which attract higher GST rates) than** the essentials.
- It **weighs down economic growth, given the informal sector's overwhelmingly** large share in employment.
- Covid crisis has ravaged non-agricultural entities in the unorganized sector more than the rest.
- Informality also has a gender bias. Women are somewhat more likely to be engaged in the informal economy but significantly more likely than men to be working as informal workers in the formal sector.

Status of Informal Sector
- India's informal sector **accounts for about a half of its GDP but employs as much as 80% of its workforce,** according to an HSBC estimate.

About Informal Sector
- It **includes very low-value-added activities in the informal sector**, such as rickshaw pulling, barbershops on pavements, domestic service, and street traders.
- **The informal sector describes all those activities that are no formally regulated** by the government because they do not come under any legal regulatory frameworks.

Why people Work in Informal Sector
- it allows the poor to find an avenue of employment, even though the informal sector provides very low incomes.
- The informal sector includes activates in industry, agriculture, and services, but the informal service sector is particularly important because it requires almost no capital to enter this sector and so it serves as a final resort for all those who fail to find work anywhere else.
- Informal service sector jobs usually do not require the workers to set themselves up in business, and so this sector tenders to absorb all those who cannot find jobs elsewhere.

Disadvantage of Informal Sector
- They **represent and wasteful use of human resources th**at could be more productively employed in higher-wage sectors if

only jobs were available in those areas.

- The **size of informal service sector activates thus might reflect the lack of a development dynamic in an economy**, and its failure to generate high-wage employment in rapidly growing industrial, agricultural, or high value-adding service sectors.

Advantage of Informal Sector

- **Informal sector service activates represent an escape route for the poor** who would otherwise find it even more difficult to survive.
- Informal **sector should not be undervalued in a developing country since it provides vital employment opportunities** and is a source of dynamism in the economy.
- This is the best way to reduce poverty and provide employment opportunities.

Way Forward

- **Rise in Exports:** Most large companies are flooded with orders, so much so that they have started taking the help of the ancillary units (in the informal sector) to fulfil their commitments. While some of the smaller units did suffer initially, things are improving now.
- **Skilling the labor**: Unless the labor force is not skilled and educated, they will not be accommodated in the formal sector and the efforts to formalization will result in unemployment.
- **Social security**: Investing in social security schemes like Atal Pension Yojana, PM Jeevan Jyoti Yojana, Rashtriya Swasthya Bima Yojana, Aam Aadmi Bima Yojana can help improve the condition of workers. The mention of Universal Basic Income in Economic Survey 2016-17 is a positive step in this direction.
- **Financial support**: Giving financial support to help small-scale industries stand on their own is a crucial step in bringing them to the organized sector. Schemes like MUDRA loans and Start-up India are helping the youth carve a niche in the organized sector.
- **Policy reforms**: The structural policies designed to promote formality should be implemented with caution, aimed at encouraging formalisation rather than explicitly discouraging informal activity.

GEOGRAPHICAL INDICATION

GS-III ECONOMY

Context

- In the recent times, many products have received the geographical indicator tag.

Benefits

- With the emphasis on climate change and sustainability, these products can be ready revenue generators.
- India's global brand recall and attributes of multi-cultural ethos, authenticity, and ethnic diversity are brought out by these
- Amazon's local to global programme has taken Indian producers and their products such as Delta Leather Corporation's leather and SVA Organics's organic products to 18 global markets in over 200 countries, increasing demand and company size by as much as 300 times.
- It **encourages the preservation of biodiversity**, local know-how and natural resources.
- It will **automatically resolve the three fraught India issues of poor pay for talent, low female participation in the labor** force, and urban migration.
- It will **convert talent into entrepreneurship with gig workers, and create a "passion" economy**, that is, a new way for individuals to monetize their skills and scale their businesses exponentially.
- The **labor-intensive nature of GI offers the best solution to boosting the employment**-to-population ratio in India, an abysmal 43 per cent compared with the 55 per cent global average.
- Monetizing artisanal work done at home **will increase India's low female labor force participation rate, which at 21 per cent in 2019** was half the 47 per cent global average.
- The hyper-localized nature of GI offers solutions to reverse urban migration and conserve India's ancient crafts, culture and food.

Challenges

- GI **businesses are micro, it faces the challenges of capacity-building, formal or easy access to credit,** forming marketing linkages, research and development, product innovation and competitiveness in both domestic and international markets.
- **Lack of awareness among the stakeholders of GIs**
- **non -existence of quality control** mechanisms a
- the **Act which is formulated at par with the trademarks** law tends to be more trader-centric than producer-centric.

International Scenario

- The EU has **an $87 billion GI economy**.
- China **has also done very well by GI, strengthening e-commerce in rural areas and actively promoting agricultural** special product brands in lesser developed areas.
- A **2017 UNCTAD report on inclusive growth and e-commerce deems China's e-commerce-driven growth as inclusive**. That means China has successfully empowered micro, small and medium enterprises (MSMEs) to compete with large companies on the same stage, with no geographic boundaries.

Way Forward

- The **patents and copyright protection of products** under GIs result in higher economic gains, fostering quality production and better distribution of profits.
- **Guardrails like regular audits and consultations with the GI** producers must be mandated.
- <u>Setting up of Cooperatives</u>: local GI cooperative bodies or associations which can be nationally managed by a GI board under the auspices of the Department for the Promotion of Industry and Internal Trade (DPIIT), the Ministry of Commerce department which should be tasked with developing this new sector.
- **Providing Digital Literacy: a required skill for GI producers** is digital literacy. This should be a priority agenda item for NGOs and stakeholders like the DPIIT.

About Geographical Indicator

- It is an indication
- It originates from a definite geographical territory.
- It is used to identify agricultural, natural or manufactured goods
- The manufactured goods should be produced or processed or prepared in that territory.
- It should have a special quality or reputation or other characteristics

About Geographical Indication Act

- In December 1999, the Parliament had passed the Geographical Indications of Goods (Registration and Protection) Act,1999.
- This Act seeks to provide for the registration and better protection of geographical indications relating to goods in India.
- The Act would be administered by the Controller General of Patents, Designs and Trade Marks- who is the Registrar of Geographical Indications. T
- he Geographical Indications Registry would be located at Chennai.
- The Act has come into force with effect from 15th September 2003.

Conclusion

- The Indian GI economy can be a platform for India to showcase to the world a model for ethical capitalism, social entrepreneurship, de-urbanization, and bringing women to the workforce, on the back of a robust digital system.
- It encompasses the concept of trusteeship, as advocated by Mahatma Gandhi.

SORGHUM

Context

- Genes that can increase the grain size of sorghum, a versatile grain crop used for human consumption, fodder and bioenergy generation, have been discovered, according to a new report by Queensland Department of Agriculture and Fisheries.

Findings of the Report

- About 80 per cent of the crop's grain size characteristics depend on genes, and can thus be inherited.
- As many as 125 regions in the sorghum genome have now been identified where variation in the DNA sequence was associated with grain size and response to environmental conditions.

About

- Sorghum, also called great millet or Indian millet, is cereal grain plant of the grass family (Poaceae) and its edible starchy seeds.
- Sorghum plants are very hardy and **can withstand high temperature and drought conditions**.
- The plant **originated in Africa**, where it is a major food crop. The **variety of the crop found in India is called jowar** tthat originated here.
- The grain is popular across the world because it has a **low glycaemic index, is gluten-free and nutritious**.
- **Note:** The lower the glycemic index of a cereal, the lower is the relative rise in blood glucose level after two hours of consuming it.
- The key varieties of millets include **Sorghum, Pearl Millet, Ragi, Small Millet, Foxtail Millet, Barnyard Millet, Kodo Millet and others.**
- Jowar has a dedicated All-India Coordinated Research Project since 1969.

Top 10 Jowar producers in India
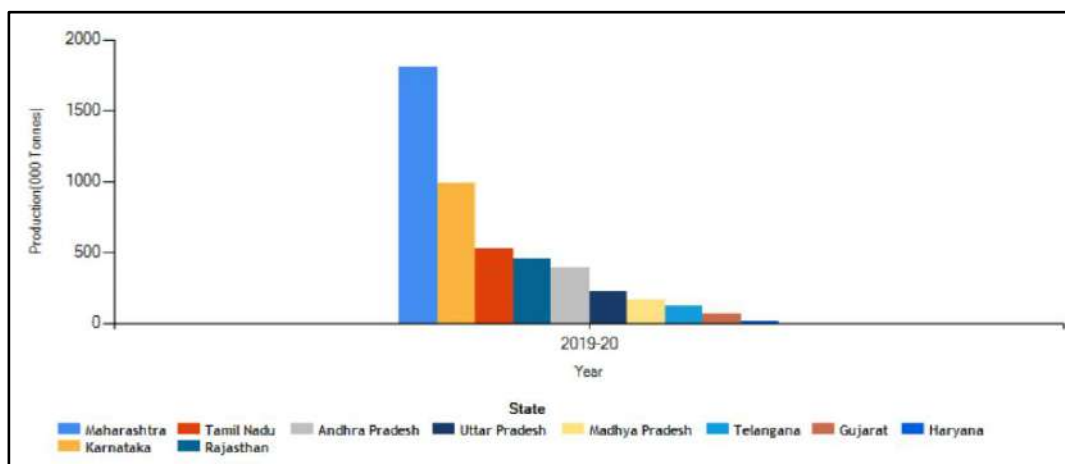
HERBICIDE-TOLERANT & NON-GM RICE VARIETIES

Context

- The Indian Agricultural Research Institute (IARI) has developed the country's first-ever non-GM (genetically modified) herbicide-tolerant rice varieties that can be directly seeded and significantly save water and labour compared to conventional transplanting.

About

- The varieties — **Pusa Basmati 1979 and Pusa Basmati 1985** — contain a mutated acetolactate synthase (ALS) gene making it possible for farmers to spray Imazethapyr, a broad-spectrum herbicide, to control weeds.

Benefits over general convention

- Usually, paddy transplantation is both labour- and water-intensive.
- The field where the seedlings are transplanted has to be "puddled" or tilled in standing water.

- For the first three weeks or so after transplanting, the plants are irrigated almost daily to maintain a water depth of 4-5 cm.
- Farmers continue giving water every two-three days even for the next four-five weeks when the crop is in tillering (stem development) stage.
- **Note:** Water is a natural herbicide that takes care of weeds in the paddy crop's early-growth period.
- The new varieties **Pusa Basmati 1979 and Pusa Basmati 1985 simply replace water with Imazethapyr and there's no need for nursery, puddling, transplanting and flooding of fields.**
- Paddy can be sowed, just like wheat saving the labor and time.

Can it be used over normal variety?

- Imazethapyr, effective against a range of broadleaf, grassy and sedge weeds, **can't be used on normal paddy, as the chemical does not distinguish between the crop and the invasive plants.**

Is there Genetic Mutation in the new varieties?

- This is herbicide-tolerance through mutation breeding, not GM. There isn't any foreign gene here.
- Both Pusa Basmati 1979 and 1985 have been bred by crossing existing popular varieties — Pusa 1121 and Pusa 1509, respectively — with 'Robin'.
- Robin is a mutant line derived from Nagina 22, an upland drought-tolerant rice variety.

Use of Imazethapyr in DSR over other herbicides

- Farmers in Punjab and Haryana are already adopting **direct seeding of rice (DSR)** in response to labour shortages and depleting water tables.
- DSR cultivation is currently based on two herbicides, **Pendimethalin (applied within 72 hours of sowing) and Bispyribac-sodium (after 18-20 days)**.
- But these are costlier than Imazethapyr (Rs 1,500 versus Rs 300/acre).
- Imazethapyr, moreover, has a wider weed-control range and is safer, as the **ALS gene isn't present in humans and mammals.**
  Read about Mutation here: https://www.iasgyan.in/blogs/bengal-strain-all-about-mutation

NATIONAL DIGITAL LIVESTOCK MISSION (NDLM)　　　*GS-III AGRICULTURE*

Context

- Union Minister of Fisheries, Animal Husbandry & Dairying unveiled the National Digital Livestock Mission Blueprint at National Dairy Development Board (NDDB), at Anand.

About

- NDLM is a digital platform being developed jointly by DAHD and NDDB on the foundation of the existing Information Network for Animal Productivity and Health (INAPH).
- The aim is to create a farmer-centric, technology-enabled ecosystem where the farmers are able to realize better income through livestock activities with the right information.

National Dairy Development Board

- The National Dairy Development Board (NDDB) is **a statutory body set up by an Act of Parliament of India.**
- It is under the jurisdiction of Ministry of Fisheries, Animal Husbandry and Dairying.
- The Board was created to finance, support and support producer-owned and controlled organisations.
- Its programmes and activities seek to strengthen farmer cooperatives and support national policies that are favourable to the growth of such institutions.
- Cooperative principles and cooperative strategies are fundamental to the board's efforts.

Information Network for Animal Productivity & Health (INAPH)

- Information Network for Animal Productivity & Health (INAPH), is an application that facilitates capturing of real time reliable data on Breeding, Nutrition and Health Services delivered at Farmer's Doorstep.
- It helps to asses and monitor progress of the projects.

RICE INDUSTRY - EMERGING CONTOURS REPORT　　　*GS-III AGRICULTURE*

Context

- Recently a report - Rice Industry – Emerging Contours was released by rating agency Infomerics Valuation and Rating.

Highlights

- The report is optimistic about the future of the rice industry in India.
- It highlights the need for a comprehensive rice strategy, with focus on new systems, technologies and new rice seed varieties.
- It lists the government initiatives on bringing about structural changes in the sector and the efficient ways to reduce the extent of dependence on the vagaries of the monsoon.

Challenges

- High fertilizer price, plummeting water table, soaring agricultural input prices and asymmetric market price information constitute risk factors.
- High rent charges of agricultural machinery, poor transportation, poor consultancy facilities and adequacy, timeliness and cost of credit.
- Diverse setting significantly impacts seasonal concentration, spatial spread, and loss of about 10 per cent of paddy/rice in processing, storage and transport.
- Heterogeneity of rice milling mills in terms of kind, capacity, location, services and ownership make the application of any standard investment, cost and return template difficult.
- The report added that there are three main risks for the rice sector in the country - **container shortage, scanty rains and low MSP coverage.**

Scenario in 2021

- About 25,000-30,000 containers are lying at ports because of disputes with Customs, etc.
- Basmati rice exports have been hit hard because 80 per cent is routed through containers.
- Erratic rainfall could affect crop production.
- Farmers have planted hectares of land with rice this year with fears of scarce rainfall although the Indian Meteorological Department has forecast the country will receive normal monsoon rains in 2021.
- Insufficient MSP realization is reflected in paddy households selling their produce to the APMC reducing from 17 per cent (2013) to 2.7 per cent (2019) because of poor participation of private traders, low infrastructure, unawareness, etc.

Way Ahead

- **Paddy/rice production in India cannot be considered in silo.**
- It is inextricably linked to the broader question of land rights and land ownership, food security, political stability, preservation of natural ecosystems and agricultural diversification.
- **Stringent international food quality and safety standards of E.U., U.S., and Japan** can help to enhance the quantity and quality of organic production.
- Since Indian agriculture continues to be a gamble in monsoon, risk mitigation measures, crop insurance, price stabilization measures, **stress on geographical indicators (GI) of basmati rice** in India and optimum use of agro-climatic conditions can reduce the dependence on the monsoon.

RUBBER   *GS-III AGRICULTURE*

Context

- India's natural rubber production is likely to fall sharply in October and November, as heavy rains have been disrupting tapping activity in the country's top producing southern state of Kerala.

About

- Rubber consists of **polymers of the organic compound isoprene**, with minor impurities of other organic compounds.
- The main chemical constituents of rubber **are elastomers, or "elastic polymers,"** large chainlike molecules that can be stretched to great lengths and yet recover their original shape.
- **Thailand and Indonesia** are two of the leading rubber producers.
- India is the **world's second-biggest consumer of natural rubber**.

Rubber plant

- *Heveabrasiliensis,* or rubber tree or rubber plant, is a flowering plant belonging to the spurge family Euphorbiaceae. The milky latex extracted from the tree is the primary source of natural rubber.
- *It* is a tall deciduous tree.
- The tree requires a **tropical or subtropical climate with a minimum of about 1,200 mm per year of rainfall,** and **no frost**. If frost does occur, the results can be disastrous for production.
- In the wild, the tree can reach a height of up to 140 feet (43 m).
- In plantations, the trees are generally smaller for two reasons:

1. Trees grow more slowly when they are tapped for latex, and
2. Trees are generally cut down after only 30 years, because <u>latex production declines as trees age</u>, and they are no longer economically productive.

- The natural rubber tree takes between <u>seven and ten years to deliver the first harvest.</u>
- As latex production declines with age, rubber trees are generally felled when they reach the age of 25 to 30 years.
- Originally, the South American rubber <u>tree grew only in the Amazon rainforest.</u>
- Early attempts were made in 1873 to grow <u>*H. brasilensis*</u> outside Brazil.
- Gradually, rubber was extensively propagated in the British colonies including India.

ZERO-BUDGET NATURAL FARMING (ZBNF)　　　　　　　*GS-III AGRICULTURE*

Context
- Women farmers in the hill State of Himachal Pradesh are gradually turning to non-chemical, low cost "natural farming", which has not only provided them with a sustainable livelihood but also empowered them better.

About ZBNF

THE METHOD AND ITS ROOTS

CONCEPT OF ZERO-BUDGET NATURAL FARMING
The concept of zero-budget natural farming is self-explanatory. If the term is broken into two halves, "zero budget" means without using any credit and without spending any money on purchased inputs, while "natural farming" means farming withnature and without chemicals

THE DIFFERENCE
In zero-budget natural farming, all goods used for growing the crop are made on the farm, with the help of cow urine and dung. Ghee and natural ingredients are also used in this. On the other hand, in organic farming, the fertilizer and insecticides, though organic, are procured from outside

FOUNDER
The concept of zero-budget natural farming was founded by Maharashtra-based Subhash Palekar. It is also an off-shoot of the Japanese idea of natural farming. He founded the concept in the 1990s

4 PILLARS OF ZERO BUDGET NATURAL FARMING

01 BIJAMRITA — seed treatment using local cowdung and cow urine

02 MULCHING — activities to ensure favorable microclimate in the soil

02 JIBAMRITA — applying inoculation made of cowdung and urine without any fertilizers and pesticides

04 WAAPHASA (Soil Moisture) — soil aeration, mproved soil structure and humus content

Why is ZBNF necessary?
- From the (NSSO) National Sample Survey Office data, 70% plus of farmers spend more they earn, and most farmers have debt.
- The indebtedness level is around 90% in states like Andhra Pradesh and Telangana, where each household has an average debt of Rs 1 lakh.
- To achieve the promise of the central government to double the income of farmers by 2022, one factor being considered is natural farming methods zero budget natural farming

Advantages of Zero Budget Natural Farming
- Zero budget natural farming reduces the initial cost of farmers.
- Farmer's income automatically increases.
- The soil ecosystem improves.
- Cow dung adds soil value. It is full of nutrients value and available locally.
- Bacteria of cow dung decompose the organic matter in soil and make soil for the plants.
- It requires less electricity and water.
- ZBNF improves the productivity of the soil.
- It decreases the disease attack risk on the crop.
- In ZBNF, yields of various cash and food crops have been found to be significantly higher
- There is reduced use of water and electricity
- Improved health of farmers

Disadvantages of Zero Budget Natural Farming
- Zero budget implies that no direct cost is incurred but there are indirect costs in terms of feed to the cattle, labor and so on.
- The cost of such produce will be higher and will only make it more challenging to find a suitable market.
- Although it is pesticide free, it will lack a pesticide-free label and hence cannot be sold as organic produce.

- Zero Budget Natural Farming might be profitable in the long run, but as of now, completely depending on it for profit is not feasible (particularly for those owning more than 5 acres)

Zero Budget Natural Farming V/S Organic Farming

S/N	Zero Budget Natural Farming(ZBNF)	Organic Farming
1.	No external fertilizers are used in ZBNF.	Organic fertilizers such as compost, cow dung, and vermicompost are used in organic farming.
2.	There is no tilling and no mixing. It requires natural ecosystems.	It requires basic agro methods like tilling, plowing, mixing, etc.
3.	It is low-cost farming due to the local biodiversity.	It is expensive due to the need for bulk manures.

STUBBLE BURNING — GS-III AGRICULTURE

Context

- At least 5,772 incidents of stubble fire have been registered in Punjab till October 22 alone.
- Every year around the months of October and November, farmers in states like Punjab, Haryana and Uttar Pradesh burn the stubble that is left after harvesting the paddy crop.

What is Stubble Burning?

- Stubble burning is, quite simply, the act of removing paddy crop residue from the field to sow wheat.
- It's usually required in areas that use the **'combine harvesting'** method which leaves crop residue behind.

Now, what is combine harvesting?

- Combines are machines that harvest, thresh i.e. separate the grain, and also clean the separated grain, all at once.
- The problem, however, is that the machine doesn't cut close enough to the ground, leaving stubble behind.
- This stubble is of no use for the farmer.
- There is pressure on the farmer to sow the next crop in time for it to achieve a full yield.
- The quickest and cheapest solution, therefore, is to clear the field by burning the stubble.

Statistics

- According to an August 2019 study titled **'Fields on fire: Alternatives to crop residue burning in India,'** farmers in northwest India burn around 23 million tonnes of rice straw so that they can clear the land quickly for the sowing of wheat.
- According to official reports, more than 500 million tonnes of parali (crop residues) is produced annually in the country.

Impact of Stubble Burning

Impact is enormous

Impact – Polluted Air

Why harmful for air
One ton of stubble on burning releases
2 kg of SO2
3 kg of PM
60 kg of CO
1,460 kg of CO2
199 kg of ash

CENTRAL POLLUTION CONTROL BOARD'S AIR QUALITY STANDARDS

AIR QUALITY INDEX (AQI)	CATEGORY
0-50	Good
51-100	Satisfactory
101-200	Moderate
201-300	Poor
301-400	Very Poor
401-500	Severe

- **Air Quality:** Air quality monitoring stations in Delhi-NCR registered **above 999 on the Air Quality Index in 2019**, which is way beyond emergency levels.
- The emissions directly contribute to environmental pollution, and are also responsible for the **haze in Delhi and melting of Himalayan glaciers.**
- **PM 2.5 and PM10** particularly cause cancer.
- The cost of air pollution due to stubble burning in India is estimated to be $30 billion annually.
- Stubble-burning deteriorates the soil's organic content, essential nutrients and microbial activity – which together will reduce the soil's long-term productivity.
- **Health:** Severe neurological, cardiovascular and respiratory diseases, asthma, chronic obstructive pulmonary disease (COPD), bronchitis, lung capacity loss, emphysema, cancer, etc. It also leads to an increase in mortality rates due to the prolonged exposure to high pollution.
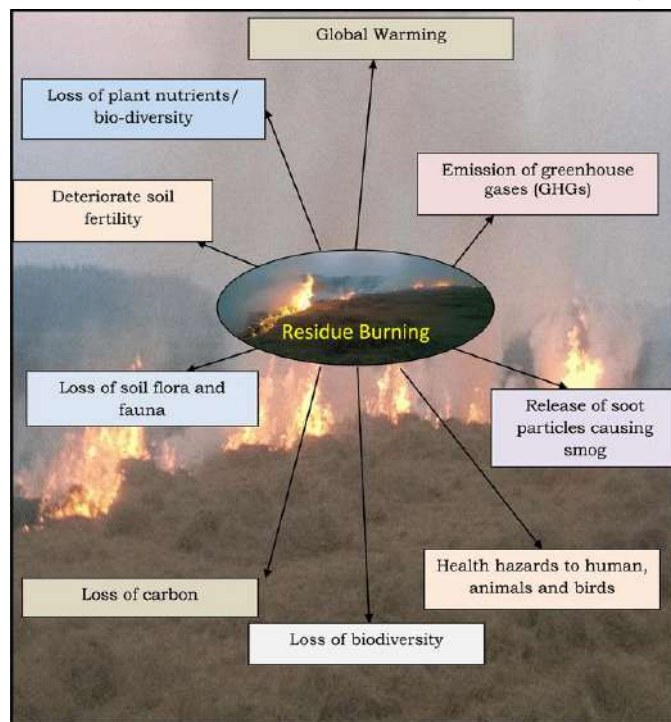
Solutions to the burning problem

- In 2014, the Union government released the **National Policy for Management of Crop Residue**.
- **Farmers can also manage crop residues effectively by employing agricultural machines like:**
  o Happy Seeder(used for sowing of crop in standing stubble)
  o Rotavator (used for land preparation and incorporation of crop stubble in the soil)
  o Zero till seed drill (used for land preparations directly sowing of seeds in the previous crop stubble)
  o Baler (used for collection of straw and making bales of the paddy stubble)
  o Paddy Straw Chopper (cutting of paddy stubble for easily mixing with the soil)
  o Reaper Binder (used for harvesting paddy stubble and making into bundles)
  o **Waste Decomposer:** Scientists at the National Centre for Organic Farming have developed a 'Waste Decomposer' concocted with effective microorganisms that propel in-situ composting of the crop residue.

*"The first step to curb crop burning is to find uses for the stubble..- **Centre for Science and Environment (CSE).***

Other uses of stubble

Converting Crop Stubble into Animal Feed, Manure, Cardboard

- In South India, stubble is not burnt as there's economic value as animal feed.

Converting Crop Stubble to Biodegradable Cutlery

- Kriya Labs, an IIT-Delhi startup, has developed a machine that can convert the leftover rice straw into pulp, and that is further moulded to produce biodegradable cutlery.

Biochar

- Another option is to convert stubble into biochar, which can be used as a fertiliser, by burning it in a kiln.

In power plants

- There is also the option of using straw to replace coal in old power plants. This would not only help to extend the life of the built infrastructure, but will also reduce environmental costs.

Redesigning- Combine Harvesters

- The best solution is if Combine Harvesters do not leave the stubble behind. This can be done by the Combine Harvester manufacturers by slightly tweaking the design of their machines. This will eradicate the entire problem from root and cause.

Agri-Waste Collection Centers

- The government may consider setting up **"Agri- waste Collection Centres" alongside the "Paddy Purchase Centres".**
- Here, the farmers may sell their agri-waste at a reasonable price and earn some additional income and are not tempted to burn it.

Why is stubble burning a problem in the Northern states only?

India relies on its northern states of Punjab, Haryana, western Uttar Pradesh and Uttarakhand for wheat.

Now, states in the south use combine harvesting too. But the clinching difference is that they don't have the urgency to remove the stubble to make it ready for the next crop.

So won't reducing paddy production reduce stubble too?

Yes, that is simple math, but given that rice is a lucrative crop, how do we go about doing this? The answer is to give incentive to farmers to grow other crops.

Crop Diversification - A long term solution

- A shift to crops such as maize, beans and lentils need to be envisaged.
- This would reduce the burning because they are normally harvested by hand or can be gathered earlier.
- The Centre and state governments could adopt methods to incentivize farmers, rather than penalizing them.
- If production of other crops, like maize, is made more lucrative, then farmers will switch to growing those.
- Another way to reduce stubble burning is to replace long-duration paddy varieties with shorter duration varieties like **Pusa Basmati-1509 and PR-126.**

Directions from the apex court

- **The Supreme Court has been asking if the MSP can be withheld over farm fires.**

Final Thoughts

- A holistic approach is required to address crop residue burning. This includes a multi-disciplinary and multi-agency setting involving
  - technical agencies,
  - market-based economic tools,
  - supporting agricultural and environmental policies, and
  - awareness and capacity building for farmers.
- In the medium term (that is the next seven years), there is a need to encourage crop diversification and rotation.
- There also needs to be a **central coordinating mechanism for paddy stubble management and crop diversification** with adequate resources, and a clear assignment of responsibilities between national and sub-national agencies.
- A push towards crop diversification package should be a mix of policy measures such as encouragement of agro-business enterprises – possibly under Aatmanirbhar Bharat Abhiyan (Self-reliant India) – farmer awareness campaigns, economic incentives such as minimum support prices for alternative crops, along with infrastructure support such as agricultural inputs for identified alternative crops, cold storage facilities and market promotion mechanisms.

The Chattisgarh Model of Gauthan

- The Chhattisgarh Government has undertaken an innovative experiment of setting up "gauthans" to curb stubble burning. A gauthan is a dedicated five-acre plot, held in common by each village, where all the unused parali is collected through paralidaan (people's donations) and is converted into organic fertilizer by rural youth. This provides them a living. The government supports the transportation of parali from the farm to the nearest gauthan. The state has already developed more than 2,000 gauthans.
- The Chattisgarh Model of Gauthan generates employment among rural youth as well. A committee consisting of economists, agricultural experts, farmer delegates and bureaucrats can be set up at national level to evaluate the parali burning crisis and explore the possibilities of integrating Gauthan concept with schemes like the MGNREGA by expanding the MGNREGA scheme to harvesting and composting.

NOBEL PRIZE FOR PHYSIOLOGY OR MEDICINE 2021

GS-III SCIENCE & TECHNOLOGY

Context
- American scientists David Julius and Ardem Patapoutian have won the 2021 Nobel Prize for Physiology or Medicine for their discoveries of receptors for temperature and touch.

Experiment
- Dr. Julius has been studying the different compounds in chili peppers and spider venom to understand how our bodies sense heat and chemical irritants.
- Decoding the neuroscience of pain can help develop new targets for pain therapy.
- Dr. Patapoutian helped discover a novel class of sensors in our skin and internal organs that respond to cold and other mechanical stimuli.

Findings
- They detailed how **capsaicin, or the chemical compound in chilli peppers**, causes the burning sensation.
- They created a library of DNA fragments to understand the corresponding genes and finally discovered a new **capsaicin receptor and named it TRPV1.**
- This discovery paved the way for the identification of many other temperature-sensing receptors.
- They identified another new receptor called **TRPM8, a receptor that is activated by cold.**
- They explained that **this new receptor is specifically expressed in a subset of pain-and-temperature-sensing neurons.**
- They further studied if these receptors can be activated by mechanical stimuli.
- They poked cells and identified a cell line that produced an electric signal in response.
- They identified a single gene, which when silenced made the cells insensitive to the poking.
- They named this new **mechanosensitive ion channel Piezo1.**

Significance
- This knowledge [of the TRPV1, TRPM8 and Piezo channels] is being used to develop treatments for a wide range of disease conditions, including chronic pain.

INDIA'S FIRST IVF CALF BORN

GS-III SCIENCE & TECHNOLOGY

Context
- With the birth of first IVF calf of a Buffalo breed namely Banni in the country, India's OPU - IVF work has reached to next level.

About
- In vitro fertilization (IVF) is used clinically in cattle and humans.
- In vitro fertilisation (IVF) is a **process of fertilisation where an egg is combined with sperm in vitro ("in glass").**
- The process involves monitoring and stimulating a female's ovulatory process, removing an ovum or ova (egg or eggs) from her ovaries and letting sperm fertilise them in a culture medium in a laboratory.
- After the fertilised egg (zygote) undergoes embryo culture, it is implanted in the female.
- IVF is a type of **assisted reproductive technology used for infertility treatment and gestational surrogacy.**
- A fertilised egg may be implanted into a surrogate's uterus, and the resulting child is genetically unrelated to the surrogate.

Benefits of Animal IVP
- Some of the key benefits of IVP as a reproductive tool are:
Overcome Physiological Problems
- IVF can be used to produce offspring from superior gene animals that are non-productive in traditional methods.
- The reasons could be abnormal or damaged reproductive tracts, poor response to stimulation or idiopathic reasons.
Preserve Valuable Genetics
- Genetically elite animals can be repeatedly used as egg donors and the embryos produced transferred into less valuable animals, producing offspring with favourable genetics.
- In the case of the unexpected death / slaughter of a valuable animal, eggs can be rescued from the ovaries and the resultant embryos can be transferred into recipients.

Shorter Generational Interval

- Typically, donor oocytes can be aspirated on a two-week cycle whereas most embryo transfer (ET) programmes operate on a 60 day cycle. This allows for increased propagation of premium livestock.

Other advantages

- increase in the number of offspring per female
- easier and more rapid exchange of genetic material between countries
- less transport of live animals, thereby reducing risks of disease transmission
- storage and expansion of rare genetic stock.

Note: The main disadvantage is the high cost of the technique.

Conclusion

- Both the government and the scientist fraternity see a great potential in the field of IVF of buffaloes and are striving hard to improve cattle wealth in the country.

INDIA, AUSTRALIA SIGN 'TERMS OF REFERENCE' FOR NAVY

GS-III SECURITY & DEFENSE

Context

- The Indian Navy and the Australian Navy signed the 'Terms of Reference' (ToR) for the conduct of the navy to navy talks under the **framework of the 'Joint Guidance for the India - Australia Navy to Navy Relationship'** document.
- This is the **first such document signed by the Indian Navy with any country.**

Significance

- It set the navy to navy talks as the **principal medium for guiding the bilateral cooperation**.
- It would be **pivotal in consolidating the shared commitment to promoting peace, security, stability and prosperity in the Indo-Pacific region**

What is ToR?

- The ToR **detailed the modalities for engagement at various levels between the two navies and streamlined the process**.
- It provide flexibility for the implementation of separate agreements based on the specific outcomes of the talks.
- It focus on **developing mutual understanding, cooperating for regional security, collaborating in mutually beneficial activities and developing interoperability**.
- It **is aligned to the '2020 Comprehensive Strategic Partnership'** aimed **to ensure shared approaches to regional and global security challenges.**

India and Australia defence cooperation

- The inaugural navy to navy talk with Australia was held in 2005.
- Bilateral defence relations between India and Australia have significantly expanded over the years and they have also concluded a **Mutual Logistics Support Agreement**.
- Australia is also part of the **Malabar naval exercise**, which also includes Japan and the U.S.
- Australia has deployed a Liaison Officer at the Indian Navy's **Information Fusion Centre for Indian Ocean Region (IFC-IOR)** as part of efforts to expand cooperation in maritime domain awareness.

About IFC-IOR

In real time

The Navy's Information Fusion Centre-Indian Ocean Region (IFC-IOR) in Gurugram is the single-point centre linking all coastal radar chain networks along the 7,500-km Indian coastline and in some neighbouring countries

- The IFC tracks and monitors 75,000 - 1.5 lakh shipping vessels in real time round- the-clock

- The IFC actively interacts with the maritime community and has already built linkages with 18 countries and 15 multinational and maritime security centres

- The major centres with which regular exchange of maritime security information is being undertaken include Virtual Regional Maritime Traffic Centre, Maritime Security Centre- Horn of Africa, Regional Cooperation Agreement on Combating Piracy and Armed Robbery, Information Fusion Centre-Singapore, and International Maritime Bureau-Piracy Reporting Centre

BORDER SECURITY FORCE

GS-III SECURITY & DEFENSE

The story so far

- The Ministry of Home Affairs (MHA), enhanced the "arrest, search and seize" powers of the Border Security Force (BSF) **up to 50 km from the international boundary within Assam, West Bengal and Punjab.**
- In **Gujarat, the limit was reduced from the existing 80 km to 50 km**. In **Rajasthan, the 50-km limit remains unchanged.**
- It replaces a 2014 order under the BSF Act, 1968, which also **empowers the force to conduct counter-insurgency operation in Manipur, Mizoram, Tripura, Nagaland and Meghalaya**.

- The order specifically mentions the two newly created Union Territories-J&K and Ladakh.

What is MHA's role here?

- The BSF is a central armed police force (CAPF) that functions under the Union government.
- It was raised in 1965 in the **aftermath of the India-Pakistan war.**
- The BSF Act was passed by Parliament in 1968 and the rules governing the Act were framed in 1969.
- The MHA issues all orders pertaining to the BSF and other CAPFs such as the Central Reserve Police Force (CRPF), Sashastra Seema Bal (SSB), Indo Tibetan Border Police (ITBP), Central Industrial Security Force (CISF), National Security Guard (NSG) and Assam Rifles.
- India is a Union of States and under **One Border One Force policy**, the BSF is deployed **along the Pakistan and Bangladesh borders.**
- It is also deployed in areas **affected by Left Wing Extremism (LWE) and is routinely deployed for election and other law and order duties on the request of State governments.**

Under what provisions BSF is empowered to arrest, search and seize?

- According to Rule 15 of the BSF Rules, 1969, the BSF has been assigned **three primary tasks** while deployed along the borders:
- **promote a sense of security among the people living in the border area**
- **prevent trans-border crimes/unauthorised entry into or exit from the territory of India and**
- **Prevent smuggling and any other illegal activity.**

What are the violations that BSF is empowered to deal with?

- The violations against which the BSF carries out search and seizure include **smuggling of narcotics, prohibited items, illegal entry of foreigners and offences punishable** under any other Central Act.
- The MHA has given powers to the BSF personnel in border areas under **the Customs Act, the Passport Act, the Narcotics Drugs and Psychotropic Substances Act, the Code of Criminal Procedure (CrPC), Registration of Foreigners Act, 1939, the Central Excises and Salt Act, 1944, the Foreigners Act, 1946, and the Foreign Exchange Regulation Act, 1947.**
- The BSF **does not have police powers**; after apprehending a suspect it can **only conduct "preliminary questioning" and has to hand over a seized consignment or the suspect to the local police within 24 hour**s.
- It **does not have powers to prosecute crime suspects. Police is a State subject under the Constitution.**

Why the amended order now?

- The amendment "**establishes uniformity in defining the area within which the BSF can operate**" and also to **improve its operational effectiveness in curbing trans-border crimes.**
- The operational writ of the BSF was different in different border States and the fresh notification ends this anomaly.

What is the State government's contention?

- The two Opposition ruled border States- Punjab and West Bengal, have termed the **MHA's move an attack on federalism.**
- Punjab Chief Minister has demanded a rollback. However, State's Deputy Chief Minister said the Chief Minister never made such a demand with the Central Government.
- The ruling Trinamool Congress (TMC) in West Bengal has termed the move an "infringement" on the rights of the State and an attack on the federal structure of the country.

SINGLE-USE PLASTICS

Context
- India will ban most single-use plastics by next year as part of its efforts to reduce pollution.
- The **ban on most single-use plastics will take effect from July 1, 2022.**

Plastics
- **Plastic** is a lightweight, hygienic and resistant material, which can be molded in a variety of ways and utilized in a wide range of applications.
- Most plastics do not rust/corrode/biodegrade, but instead photodegrade, meaning that they slowly break down into small fragments known as micro-plastics.

Impact of plastic Pollution
- According to recent estimates, **79% of the plastic waste ever produced now sits in landfills, dumps or in the environment**, while about 12% has been incinerated and only 9% has been recycled.

Environmental Pollution
- Toxic chemicals leach out of plastic through landfill site, is linked to decreasing crop productivity, impacting food security, birth defects, impaired immunity, endocrine disruption and other ailments
- Every year, up to 13 million tons of plastic leak into our oceans, where it smothers coral reefs and threatens vulnerable marine wildlife.
- Disposing of plastic waste by burning it in open-air pits releases harmful gases like furan and dioxin.

Health Impact
- Plastic bags often provide breeding grounds for mosquitoes and pests thus increase the transmission of vector-borne diseases like malaria.

Bioaccumulation
- Plastic bags are often ingested by animals who mistakenly taken them for food due to which toxic chemicals entered the human food chain.

Financial Loss
- The total economic damage to the world's marine ecosystem caused by plastic amounts to at least $13 billion every year.

Exuberating Natural Disaster
- Encroachment and clogging of city drainage with plastic and solid waste often leads to suburban flooding e.g. Mumbai's experience of annual flooding like situation during monsoon season due to water clogging etc.

Social Cost
- The social damage continuously being inflicted is inestimable as every sphere of life get affected by it like tourism, recreation, business, the health of humans, animals, fish and birds.

Challenges in addressing Plastic Pollution
- **Not prioritized by the state authorities-** Waste management is the last in the list of priorities of municipal corporations. Many States/UTs have not constituted State Level Monitoring Committee (SLMC) Body to monitor implementation of PWM Rules.
- **Lack of expertise-** among the state pollution control boards and the dearth of understanding of the scale of the plastic waste challenge.
- Presence of a communication gap between the state and central government officials.
- **Poor response of companies/ producers-** which are mandated to set up systems either individually or collectively in cities to ensure the collection of non-recyclable waste. They are supposed to submit their plans to states, which has been founding lacking till now.
- **Lack of accurate data-** Only 14 of India's 35 state pollution control boards filed information on plastic waste generation in 2017-18, as per CPCB.
- **Large-scale presence of informal sector-** Over 90 percent of the plastic industry is informal, thus trying to reach and work with these manufacturers becomes a challenge.

Measures taken so far in India
- **Airports Authority of India has declared 55 out 134 airports as single-use plastics free**.
- **UGC has also written to all universities to initiate a bid to make their premises free of them.**
- Some **Central government ministries like food and consumers affairs have announced that single-use plastics would not be used in their premises.**
- ITC group of hotels and the Rajasthan High Court have made similar announcements.

- **Several state governments have announced a ban on single-use plastics** such as Maharashtra, Telangana, Himachal Pradesh, Tamil Nadu, Odisha Goa and Andhra Pradesh.
- **Plastic Waste Management Rules, 2016 (as amended in 2018):**
  o Defines minimum thickness of plastic carry bags e. 50 microns.
  o Gram Sabha will implement the rules in rural areas.
  o Producers and brand owners will have extended producer responsibility.
  o Waste Generator shall segregate and store their waste and handover it to authorized waste disposal facilities.
  o Only the registered shopkeepers on payment of a registration fee to local bodies would be allowed to give out plastic carry bags on charge.
  o Producer will keep a record of vendors to whom he/she has supplied raw materials for manufacturing.
 o A Central Registration System for the registration of the producer/importer/ owner.

Concerns

- Industry had raised a major objection, saying that **in the absence of any imminent alternative, their sales might drop sharply.**
- Such a ban **would increase the price of most FMCG products** as manufacturers would try and shift to alternative packaging.
- A **ban would wipe out various low price point products** (those that cost less than Rs 5 such as shampoo sachets, detergent pouches, biscuit packets and others) as production at these price points would become unviable.
- FICCI had also said the **Rs 53,000 crore plus segment of the plastic manufacturing industry would be hit because of a ban, leading to job losses.**
- **Thirteen lakh personnel across 10,000 firms would immediately lose their jobs.**
- The food processing industry would suffer from a revenue loss of Rs 90,000 crore.
- However, the major bone of contention remains the fact that there is no central definition of what comprises single use plastics, which may adversely affect any sort of ban.

Single-use plastics

- They are **generally used only once before they are thrown away or recycled.**
- They have a **higher carbon footprint and are more resource and water intensive to produce.**
- Many times, the packaging is not effectively collected, ending up in landfills and drains in the cities and these single-use plastic items clog water bodies and finally ending up in the ocean.
- There is higher cost of collection.
- **Single-use plastics took most of the spots in Top Ten finds during international coastal cleanups.**
- In addition to people's negligence, the **large presence of single-use plastics in the environment is symptomatic of poor or failing waste management systems.**

Way Forward

10-point roadmap for policymakers:
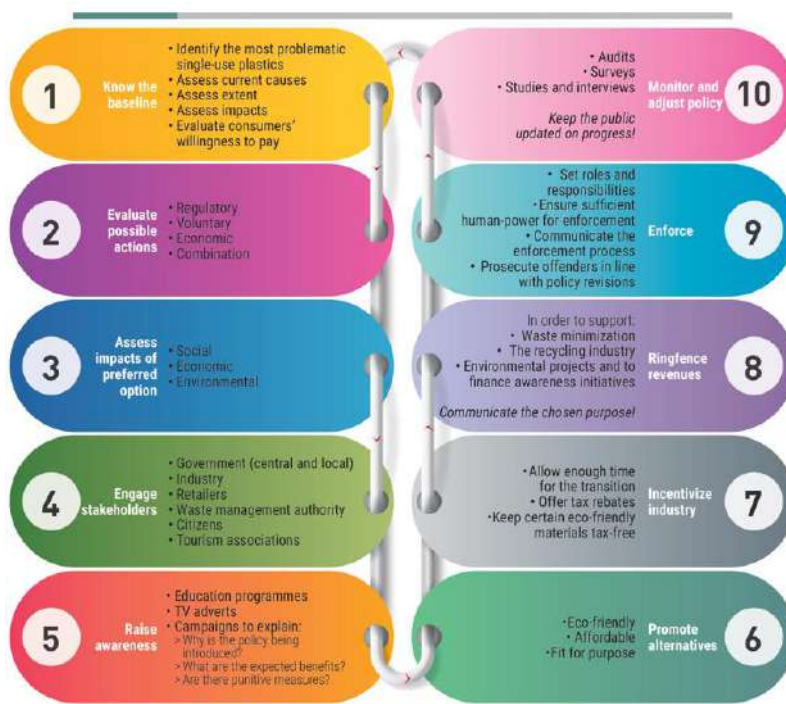
Examples of policy instruments to minimize single use plastics

Type of instruments to reduce single-use plastic waste		Overview of Method	Example of applications	Positive impacts
Voluntary reduction strategies		It builds on the understanding that for change to be long-lasting, it needs to be voluntary and based on choice	Promotion of reusable alternatives to single-use plastics (e.g. promotion of reusable bags, reusable bottles, etc.)	Allows time for population to change consumption patterns, which can trigger changes among manufacturers. Allows time for affordable and eco-friendly alternatives to enter the market
	Public-private partnerships	The agreement sets the overarching goal, but leaves the choice to the private sector on how to achieve the results	Voluntary agreements between government and retailers (e.g. to encourage retails to voluntarily ban or phase out single-use plastic bags)	Valid alternative to bans. Achieves reductions in single-use plastic consumptions. Stimulates businesses
			Agreements with producers (e.g. to voluntarily establish Extended Producer Responsibility, including deposit return schemes)	
Public education		It requires a gradual and transformational process, key to change consumers' behaviour	Introduction of environmental conservation principles in school curriculums	Common denominator for the success of any initiative
			Social campaigns	
Policy instruments	Regulatory	Bans the use, sale, etc. of certain single-use plastic items	Ban (total or partial)	Relatively simple to introduce. Can reduce amount of single-use plastic consumed. Can be a step towards more comprehensive policies
		Laws and acts mandating that packaging manufacturers bear some responsibility in recovering packaging waste	Extended Producer Responsibility	Reduces amount of packaging lingering in the environment. Fosters business responsibility. Stimulates recycling sector
	Economic	Levies or taxes on certain items	Levy on suppliers	Dissuasive effect, leading to behavioural change. Generates (short-term) income
			Levy on retailers	
			Levy on consumers	
	Combination of regulatory and economic		Ban and levy	A combination of the above
			Extended Producer Responsibility	

🔴 **CONFERENCE OF PARTIES (COP26)** /// **GS-III   ENVIRONMENT & ECOLOGY**

Context

- India's big push at the COP26 will be to have more countries commit to a "net zero" deadline by mid-century.

Formation of COP

- The Conference of Parties comes under the United Nations Climate Change Framework Convention (UNFCCC) which **was formed in 1994.**
- The UNFCCC was established to work towards **"stabilization of greenhouse gas concentrations in the atmosphere."**
- It laid out a list of responsibilities for the member states which included:
- Formulating measures to mitigate climate change
- Cooperating in preparing for adaptation to the impact of climate change
- Promoting education, training and public awareness related to climate change

COP1 to COP25

- COP members have been meeting every year since 1995.
- The UNFCCC has 198 parties including India, China and the USA.
- The first conference (COP1) was held in 1995 in Berlin.
- At **COP3** held in Kyoto, Japan, in 1997, the famous **Kyoto Protocol** was adopted. It commits the member states to **pursue limitation or reduction of greenhouse gas emissions**. It **entered into force on 16 February 2005** and there are 192 Parties in the Kyoto Protocol.
- **India hosted the eighth COP** in 2002 at New Delhi.
- One of the most important conferences, COP21 took place in Paris, France, where member countries agreed to work together **to 'limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels.'**

COP26 goals

- According to the UNFCCC, COP26 will work towards four goals:
1. **Secure global net-zero by mid-century and keep 1.5 degrees within reach**
2. **Adapt to protect communities and natural habitats**
3. **Mobilize finance**
4. **Work together to deliver**

The UK Presidency at COP26 has five priorities, aiming to ignite a similar level of progress through new alliances

- **Adaptation and resilience:** 'Helping people, economies and the environment adapt and prepare for the impacts of climate change.'

- **Nature:** 'Safeguarding ecosystems, protecting natural habitats and keeping carbon out of the atmosphere.'
- **Energy transition:** 'Seizing the massive opportunities of cheaper renewables and storage.'
- **Accelerating the move to zero-carbon road transport:** 'By 2040, over half of new car sales worldwide are projected to be electric.'
- **Finance:** 'We need to unleash the finance which will make all of this possible and power the shift to a zero-carbon economy.'

What India could do to reach its targets?

- It is time for India to update its Nationally Determined Contributions or NDCs. (NDCs detail the various efforts taken by each country to reduce the national emissions)
- Sector by sector plans are needed to bring about development. We need to decarbonize the electricity, transport sector and start looking at carbon per passenger mile.
- Aggressively figure out how to transition our coal sector
- India, the world's third largest emitter, hasn't agreed to a net zero deadline.

Why hasn't India agreed to a net zero target?

- India sees a mid-century target upon itself as opposed to the **principle of "common but differentiated" responsibility** that allows countries to eschew fossil fuel without compromising equitable development.
- Net zero means that a country must commit to a year beyond which its emissions won't peak and a point at which it will balance out its emissions by taking out an equivalent amount of greenhouse gas from the air.
- Even theoretically committing to a **net zero by 2050 would require India to retire its coal plants and fossil fuel use overnight** and even this wouldn't guarantee that temperature-rise stays below 1.5C by the end of the century.

- India avers, most of the countries clamoring for a net zero target for India will continue — even with their national stated reduction targets — to pollute on a per capita basis way beyond their fair share.
- India says **countries responsible for the climate crisis haven't made good on previous promises to fund mitigation and adaptation projects** and so future net zero promises are therefore hollow.
- The IPCC's Sixth Assessment Report asserts that the **contribution of greenhouse gas emissions from various activities is the scientific basis for global warming and climate change.**

What are India's expectations from COP 26?

- Huge expectations" in COP 26 include **arriving at a consensus on unresolved issues of the Paris Agreement Rule Book, long-term climate finance, market-based mechanisms**.
- The COP26 should also be initiating the process of setting the long-term climate finance for the post-2025 period.
- India welcomed the UK COP26 Presidency's **five key initiatives** on
  - sustainable land use
  - energy transition
  - low emission vehicle transition
  - Climate finance and adaptation.
- India was also hoping to **strengthen global climate initiatives including the International Solar Alliance, Coalition Disaster Resilient Infrastructure (CDRI), leadership Group for Industry Transition (LeadIT Group), Call for Action on Adaptation and Resilience and Mission Innovation**.

What are India's core demands?

- India has said it is "open to all options" provided it gets assurances that commitments in previous COPs such as
- developing countries getting compensated to the tune of $100 billion annually
- the carbon-credit markets be reinvigorated and the countries historically responsible for the climate crisis be compensated by way of "Loss and Damages," and
- Clean development technologies be made available in ways that its industries can painlessly adapt to.

REC MECHANISM — GS-III ENVIRONMENT & ECOLOGY

Context

- Union Minister of Power and New & Renewable Energy, has given his assent to amendments in the existing Renewable Energy Certificate (REC) mechanism.

Aim

- The intent behind this decision is <u>to align the 'mechanism' with the emerging changes in the power scenario and also to promote new renewable technologies.</u>

Significance of the move

- It will provide some **flexibility to the players**, additional avenues, rationalization and also **addressing the RECs validity period uncertainty issues**.

REC Mechanism diagram

Salient features of changes proposed

- **Validity of REC would be perpetual** i.e., till it is sold.
- Floor and forbearance prices are not required to be specified.
- Central Electricity Regulatory Commission (CERC) to have **monitoring and the surveillance mechanism to ensure that there is no hoarding of RECs.**
- The **RE generator who are eligible for REC**, will be eligible for issuance of RECs for the period of PPA as per the prevailing guidelines.
- The existing RE projects that are eligible for REC would continue to get RECs for 25 years.
- A **technology multiplier can be introduced** for promotion of new and high priced RE technologies, which can be allocated in various baskets specific to technologies depending on maturity.
- RECs can be issued to obligated entities (including DISCOMs and open access consumers) which purchase RE Power beyond their RPO compliance notified by the Central Government.
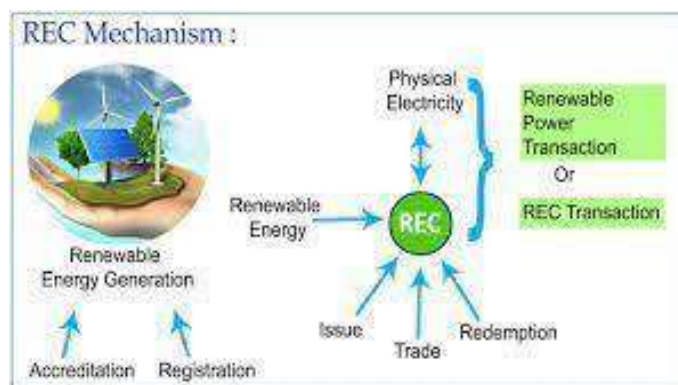
- **No REC to be issued to the beneficiary of subsidies/concessions or waiver of any other charges**. The FOR to define concessional charges uniformly for denying the RECs.
- Allowing traders and bilateral transactions in REC mechanism.
- The changes proposed in revamped REC mechanism will be implemented by CERC through regulatory process.

What is REC mechanism?

- To **address mismatch between availability of RE sources and the requirement of the obligated entities** to meet their renewable purchase obligation (RPO), **Pan-India market-based Renewable Energy Certificate (REC) Mechanism was introduced in the year 2010.**

What is the objective of Renewable Energy Certificate (REC) mechanism?

- Renewable Energy Certificate (REC) mechanism **is a market based instrument to promote renewable energy and facilitate compliance of renewable purchase obligations (RPO).**
- It is aimed at addressing the mismatch between availability of RE resources in state and the requirement of the obligated entities to meet the renewable purchase obligation (RPO).
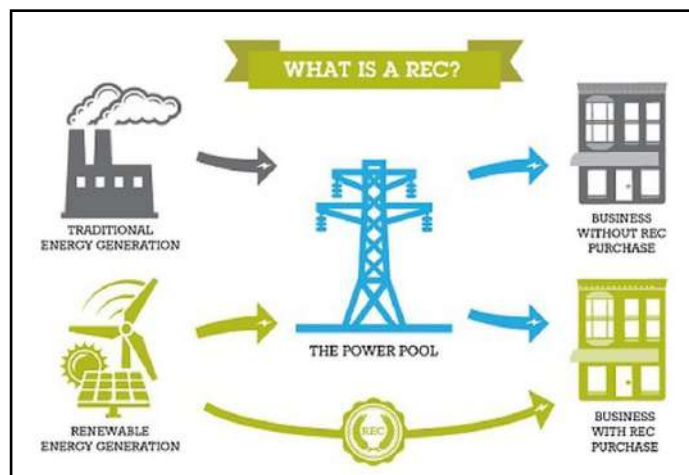
What is the denomination of each REC issued?

- One Renewable Energy Certificate (REC) is **treated as equivalent to 1 MWh.**

How many types of RECs are there?

- There are two categories of RECs, viz., **solar RECs and non-solar RECs**.
- Solar RECs are issued to eligible entities for generation of electricity based on solar as renewable energy source, and non-solar RECs are issued to eligible entities for generation of electricity based on renewable energy sources other than solar.
- The solar certificate shall be sold to the obligated entities to enable them to meet their renewable purchase obligation for solar, and non-solar certificate shall be sold to the obligated entities to enable them to meet their obligation for purchase from renewable energy sources other than solar.

FIRECRACKERS	*GS-III ENVIRONMENT & ECOLOGY*

Context

- The Supreme Court observed that six major fireworks manufacturers had violated orders requiring them not to use prohibited chemicals such as **Barium salts** and to label the firecrackers in compliance with the law.

What did the Supreme Court rule three years ago?

- The court ruled out a **full ban on firecrackers** and issued orders stipulating that **only reduced emission and green crackers be allowed**, with tight restrictions on timings when they could be burst.

What is the controversy?

- Firecrackers use **fuel and oxidizers** to produce a combustion reaction, and the resulting explosion spreads the material in a superheated state.
- The metal salts in the explosive mix get 'excited' and emit light.
- **Metals in the mix**, which have a varying arrangement of electrons in shells outside their nucleus, produce

different wavelengths of light in this reaction, generating spectacular colors.

- **Barium compounds**, for example, **produce green light and Strontium and Lithium salts, red**.
- But as many studies show, the burning of firecrackers is an unusual and peak source of pollution, made up of particles and gases.
- The Central Pollution Control Board conducted a study in Delhi in 2016, and found that the levels of **Aluminum, Barium, Potassium, Sulphur, Iron and Strontium** rose sharply on Deepavali night, from low to extremely high.
- This has resulted in litigation calling for a total ban on firecrackers, and court orders to restrict the type of chemicals used as well as their volume.
- Many crackers also violate legal limits on sound.

Can green crackers make a difference?

- The Central government says the Council of Scientific and Industrial Research, through its National Environmental Engineering Research Institute (CSIR-NEERI), Nagpur, has come out with firecrackers that have **"reduced emission light and sound"** and **30% less particulate matter using Potassium Nitrate as oxidant**.
- These crackers are named **Safe Water Releaser**, which **minimizes Potassium Nitrate and Sulphur use**, but matches the sound intensity of conventional crackers, Safe Minimal Aluminium, where Aluminium use is low and Safe Thermite Crackers with low Sulphur and Potassium Nitrate.
- These **crackers are to be identified using unique QR codes** to guide consumers.
- The Supreme Court had also previously ordered that the **Petroleum and Explosives Safety Organization should certify the composition of fireworks only after being assured that they were not made of banned chemicals**.

Common pollutants in crackers
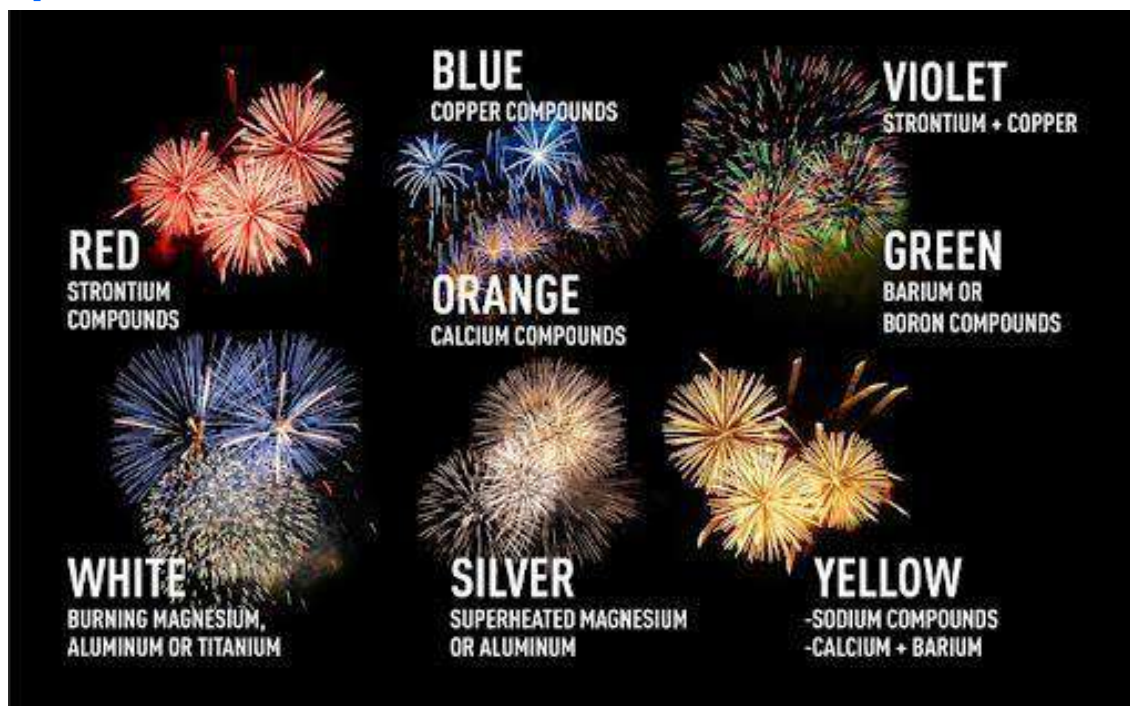
What is the state of the industry?

- The petitioners argue that out of about 2,000 manufacturers, **only 120 had the capacity and inclination to work with the court to green the crackers**.
- Firecrackers **are not labelled with information on the person responsible for legal compliance**, as ordered by the court.

PROPOSED AMENDMENTS TO THE FCA   *GS-III   ENVIRONMENT & ECOLOGY*

What is the Forest Conservation Act?

- The Forest (Conservation) Act, 1980, came into force **to address deforestation**.
- Though the Indian Forest Act has been in force since 1927, it was geared to allow the colonial British administration to **control the extraction of timber and not aimed at preserving forests or addressing deforestation.**
- While States had already notified forest land, the **FCA made it necessary to get the Centre's permission for using such forest land for "non forestry purposes"** and the creation of an advisory committee to recommend such re-classification.

Has the FCA ever been amended?

- There have been at least two major amendments to the FCA — **in 1988 and 1996**.
- Till 1996, State Governments, Union Territory Administrations and Central Government used to apply the provisions of the Act **only to the forests notified under the Indian Forest Act, 1927** or any other local law, and to forests which were under the management or control of the Forest Department.
- However what constituted a "forest" was dramatically expanded following a Supreme Court judgment.
- Now, "**forest" also included all areas recorded as "forest"** in any government record, irrespective of ownership, recognition and classification; all areas that conformed to the "dictionary" meaning of "forest", and all areas which are identified as "forest" by an expert committee constituted by the Supreme Court following the 1996 order.
- This judgment also paved the way for the **calculating the net present value**, or the economic value of the portion of forest being razed for development work that had to be paid by project proponents; the **creation of a compensatory afforestation fund**; and providing non-forestry land in lieu of the diverted forest.

Why is the FCA again being amended?

- The essential tension in the FCA is that the **state is committed to a principle of increasing forest cover**, and this makes it harder to access land for infrastructure projects by States and private entities.
- India's aim is to have at **least 33% of India's geographical area under forest and tree cover**, and increasing the latter is a major thrust.
- So far, forest cover is around 22% and because increasing core forest land is increasingly hard, the mode of expansion includes expanding the notion of what constitutes forest land.
- Thus, even degraded lands, if they have been recorded anywhere as "forest" in land records count, and even commercial plantations or regions with trees of a certain canopy cover and density count as "forest".
- On the other hand, **with more land coming under the definition of "forest", it's becoming harder for State Governments or private industry to use land** that falls under the definition of "forest" for non-forestry purposes.
- Through the years, this has given rise to multiple instances of litigation, as well questions on the legal definition of "forest".
- States have been told to provide a definition of what constitutes a forest, but several haven't given them because this has political consequences.
- All of this has led to conflicting interpretations of the FCA through the years.

What is the latest amendment about?

- In March, the Centre moved a draft Cabinet note that sought to update the FCA.
- Environment Ministry has released a "consultative paper" that spells out proposed changes. This is open to public comment for a fortnight.
- Broadly, **it proposes to exempt certain categories of infrastructure project developers from approaching the Centre for permission to use forest land for non-forestry purposes.**
- For instance, it has **proposed absolving agencies involved in national security projects**, **border infrastructure projects, land owned by the Railways or the Road Transport Ministry** that was acquired before 1980 or when the Act came into force.
- There were several instances of portions of land being used for afforestation projects requiring the owners of such land to take permission from the Centre for diverting it for non-forestry uses and even pay the mandatory compensatory cess as well as arrange for alternate land.
- There were also instances, the Ministry claims, of national security projects that were on hold due to the requirement of Central approval.

India Climate change obligations

- India, as part of its climate change action plan, has committed **to create a carbon sink to lock in 2.5 to 3 billion tonnes of CO_2 by 2030.**
- This can be achieved **only through planting trees on private land** and the current laws pose an impediment to encouraging private landowners to grow more trees.
- The current laws also have complicated definitions of the forest land that those leasing mining spaces could hold, and there were also developments in drilling technology that helped scope certain tracts of forest land without causing fundamental damage to the underlying aquifers. Thus, they too could be exempted.
- The Ministry has proposed some provisions where the penalties of non-compliance could include jail terms, but the overall tenor of the proposal is to make it a little easier to use forest land for non-forestry purposes. However, this still requires approval by the Cabinet and possibly the Parliament.

'ONE SUN, ONE WORLD, ONE GRID' PROJECT

GS-III ENVIRONMENT & ECOLOGY

Context
- India, UK likely to announce 'One Sun, One World, One Grid' at COP26 UN climate change conference, scheduled to be held from 1 November to 12 November, at Scotland's Glasgow.

About OSOWOG project
- The ambitious OSOWOG **will connect 140 countries** through a common grid that will be used to transfer solar power.
- The concept of OSOWOG, which the **British have called a Green Grid**, has been pushed by Prime Minister Narendra Modi and also found a special mention in his Independence Day speech this year.
- The idea behind the concept is a **trans-national electricity grid supplying solar power across the globe**.

What is OSOWOG or the Green Grid?
- As per the draft plan prepared by the Union Ministry of New and Renewable Energy, the ambitious OSOWOG will connect 140 countries through a **common grid that will be used to transfer solar power.**

Vision behind the OSOWOG
- Mantra is "the Sun never sets" and is a constant at some geographical location, globally, at any given point of time.
- With India at the fulcrum, the solar spectrum can easily be divided into two broad zones, which is the **far East** which would include countries like Myanmar, Vietnam, Thailand, Lao, Cambodia and **far West** which would cover the Middle East and Africa Region.
- OSOWOG is planned to be **completed in three phases.**
- The first phase will entail interconnectivity within the Asian continent; the second phase will add Africa and the third phase will globalize the whole project.
- It has been **taken up under the technical assistance programme of the World Bank**.
- Many believe that the **OSOWOG is India's counter to China's Belt and Road initiative.**

Why is OSOWOG needed?
- With OSOWOG, India is planning to take a leadership position.
- Potential benefits include **widespread scale up in energy access, abatement in carbon emissions, lower cost and improved livelihoods.**
- India will need a **strong coalition of international partners** to realize this vision.
- India's plan to have an inter-continent power infrastructure is a fairly new idea.
- The **aim of the Green Grids Initiative** is **to help achieve the pace and scale of reforms to infrastructure and market structures needed to underpin the global energy transition.**
- It will **allow national renewable energy management centers in India to grow as regional and global management centers.**

Drawbacks of OSOWOG
- The mechanism of **cost-sharing will be challenging**, given the varied priorities of participating countries depending on their socio-economic orders.
- The OSOWOG will turn out to be an **expensive, complex and very slow progress project.**
- The strategic benefits, if any, of having a single grid will be obliterated in the wake of any geopolitical problem.
- Energy supply is necessary for a range of activities including defence and essential services like hospitals, etc. Under the project, these will be **exposed to this common grid**. Any disruption caused due to any bilateral/multilateral issues can potentially affect critical services in multiple continents and countries. Hence, **not many countries may be willing to participate.**
- There is a **difference in voltage, frequency and specifications of the grid in most regions**. Maintaining grid stability with just renewable generation would be technically difficult.

SHORT NEWS ARTICLES

GS-I
CULTURE & HISTORY

Nata-Sankirtana

Context

- "Nata-Sankirtana" festival was started at the Mandap of Jawaharlal Nehru Manipur Dance Academy (JNMDA), Imphal, from September 30, 2021.

About

- It is a three-day festival of Dance and Music in Manipur.
- Ragas, Natasankirtana is a hymn of lord Krishna that synthesizes seevral indigenous rhythms.
- Sankirtana follows a <u>strict code in its performance</u> with rhythms pattern and costumes that are determined by specific rules & regulation.
- Sankirtana is performed **to mark important occasions in person's life such as from birth to death**.
- UNESCO had recognized Manipur NataSankirtana in 2013.

Mihidana and Jaynagarer Moa

Context

- First consignment of **Geographical Identification (GI) tagged sweet dish Mihidana** sourced from Bardhaman, West Bengal has been exported to the Kingdom of Bahrain.

About

- Recently, India Post in collaboration with APEDA released a specially designed envelope to commemorate the historical legacy of a century old sweet delicacy & GI certified - Jaynagarer Moa, prepared from popped-rice ball & fresh date-palm jaggery, in Jaynagar, West Bengal.
- In August, 2021, India Post released a special cover on West Bengal"s sweetmeats Mihidana and Sitabhog.
- **West Bengal's Bardhaman got the GI tag for the century-old sweetmeats in 2017.**

Langa-Manganiyar

Context

- The iconic and internationally acclaimed folk artistes have, been hit hard by the COVID-19 pandemic that stopped their performances in India and abroad and poses a challenge to the very survival of the popular art form.

About

- The Langas and Manganiyars are **hereditary communities of Muslim musicians residing mostly in western Rajasthan's Jaisalmer and Barmer districts.**
- The music of the two marginalised communities, who were supported by wealthy landlords and merchants before Independence, forms a vital part of Thardesert's cultural landscape.
- The ballads, folklore and songs of the Langa-Manganiyar artistes are being preserved through an initiative for documentation and digitisation.
- The project is aimed at saving the rapidly disappearing narrative traditions of these communities.

'Ram Van Gaman' Tourism Circuit

Context

- Chhattisgarh Chief Minister BhupeshBaghel inaugurated the redeveloped ancient Mata Kaushalya temple, part of the "Ram Van Gaman" Tourism Circuit.

About

- Nine sites are being developed to attract tourists to the circuit, believed to be the route taken by Lord Ram during his 14-year exile.
- The nine sites are Sitamarhi-Harchaika (Koriya), Ramgarh (Ambikapur), Shivrinarayan (Janjgir-Champa), Turturiya (Baloda Bazaar), Chandkhuri, Rajim (Gariaband), Sihawa-Saptarishi Ashram (Dhamtari), Jagdalpur (Bastar) and Ramaram (Sukma).

Martand sun temple

Context

- Union Minister PiyushGoyal visited the Sun temple at Martand.
- Located atop a hillock, the temple is one of the earliest known sun temples much older than Konark and Modhera.

About

- The Martand Sun Temple **also known as Pandou Laidan is a Hindu temple dedicated to Surya** (the chief solar deity in Hinduism) and built during the 8th century CE.
- Martand is another Sanskrit synonym for Surya.
- The Martand Sun Temple was **built by the third ruler of the Karkota Dynasty, Lalitaditya Muktapida, in the 8th century CE.**
- It is now in ruins, as it was destroyed by the orders of Muslim ruler Sikandar Shah Miri.
- The temple is **located** five miles from Anantnag**in the Indian union territory of Jammu and Kashmir.**
- From the ruins and related archaeological findings, it can be said it was an **excellent specimen of Kashmiri architecture, which had blended the Gandharan, Gupta and Chinese forms of architecture.**
- The Archaeological Survey of India has declared the Martand Sun Temple as a site of national importance in Jammu and Kashmir.
- The temple appears in the list of centrally protected monuments as Kartanda (Sun Temple).

GEOGRAPHY

Vatican City

Context

- His Holiness Pope Francis received Prime Minister Shri Narendra Modi in a private audience at the Apostolic Palace in the Vatican on Saturday, 30 October 2021.

About

- Vatican City State is a **landlocked and independent city state** and enclave located within Rome, Italy.
- The Vatican City State **became independent from Italy with the Lateran Treaty (1929)**.
- It is the **smallest state in the world by both area and population.**

Trincomalee Harbour

Context

- Foreign Secretary of India, Harsh VardhanShringla visited the Second World War-era oil storage facility in the strategically important port district of Trincomalee on Sri Lanka's east coast, which has been a key bilateral economic partnership link for decades.

About

- TrincomaleeHarbour is a natural large natural harbour situated on the northeastern coast of Sri Lanka.
- The bay includes the first of a number submarine canyons, making Trincomalee one of the finest deep-sea harbours in the world.

Lukha River

Context

- A detoxing pilot project has brought a river back from the dead, the Meghalaya government has claimed.

About

- The Lukha river is in the **East Jaintia Hills district where most of Meghalaya's rat-hole coal mines are located.**
- The Lukha — "reservoir of fish" in the local Pnar language — was considered toxic beyond redemption a decade ago because of the contamination on acid mine drainage and run-off from the coal mines.
- The pilot project to rejuvenate the Lukha by using algae to remove toxic contents from the water has become a success. The detoxification process is called phycoremediation.

SMAB

Context

- Ministers of the Gambia, Guinea Bissau, Mauritania and Senegal signed a joint declaration to advance transboundary cooperation in the Senegal-Mauritanian Aquifer Basin (SMAB).
- This is in line with the United Nations Economic Commission for Europe (UNECE) Water Convention.

About

- The Senegalo-Mauritanian aquifer basin is the **largest basin in the Atlantic margin of north-west Africa**, having an area of 350,000 square kilometres.
- More than 24 million inhabitants of the region are dependent on it for drinking water and other needs.
- This includes the capitals **of Guinea Bissau and Senegal, namely Bissau and Dakar.**

Drass

Context

- President of India celebrated Dussehra with Jawans in Drass.

About

- Drass is a hill station in the Kargil district of the union territory of Ladakh.
- It is on the NH 1 between Zoji La pass and Kargil town.
- Drass is **"The Second Coldest Inhabited Place in the World" and Coldest place in India** where temperatures can drop to less than -40°C.
- It is often called **"The Gateway to Ladakh".**

Geospatial energy map of India

Context

- Geospatial Energy Map of India was launched by Dr Rajiv Kumar (Vice Chairman, NITI Aayog), Dr V K Saraswat (Member, NITI Aayog), and Shri Amitabh Kant (CEO, NITI Aayog) on 18 October 2021.

About

- **NITI Aayog in collaboration with Indian Space Research Organisation (ISRO)** has developed a comprehensive Geographic Information System (GIS) Energy Map of India with the support of Energy Ministries of Government of India.
- The GIS map provides a holistic picture of all energy resources of the country which enables visualisation of energy installations such as conventional power plants, oil and gas wells, petroleum refineries, coal fields and coal blocks, district-wise data on renewable energy power plants and renewable energy resource potential, etc through 27 thematic layers.
- The map attempts to identify and locate all primary and secondary sources of energy and their transportation/transmission networks to provide a comprehensive view of energy production and distribution in a country.

Colorado River

Context

- Colorado River fish faces an uncertain future.
- The plucky humpback chub has weathered dams and invasive species, but climate change and a dwindling river flow pose new threats.

About

- The Colorado River is one of the principal rivers (along with the Rio Grande) in the Southwestern United States and northern Mexico.
- Starting in the central Rocky Mountains of Colorado in Grand Lake, Colorado, the river flows generally southwest across the Colorado Plateau and through the Grand Canyon before reaching Lake Mead on the Arizona–Nevada border, where it turns south toward the international border.
- After entering Mexico, the Colorado approaches the mostly dry Colorado River Delta at the tip of the **Gulf of California** between Baja California and Sonora.
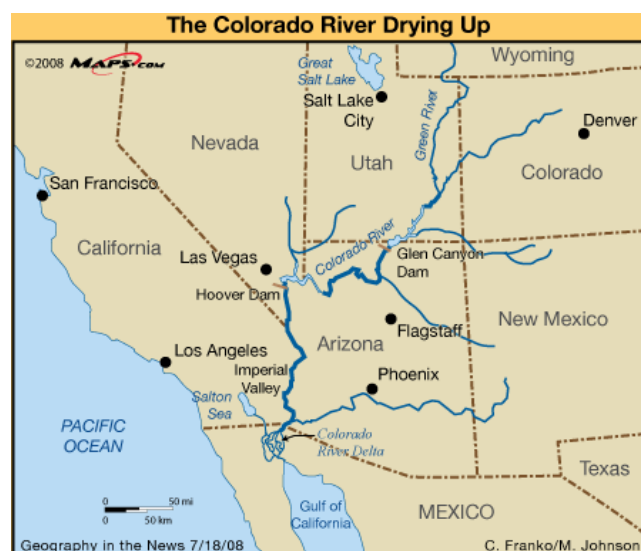
Idukki Dam

Context

- With predictions by the India Meteorological Department (IMD) of a fresh bout of heavy rainfall in Kerala starting Wednesday, as a precautionary measure, water was released from the Idukki reservoir.

About

- The Idukki Dam is a double curvature Arch dam constructed **across the Periyar River** in a narrow gorge between two granite hills locally known as Kuravan and Kurathi in Mariyapuram village in Idukki District in Kerala.
- At 168.91 metres it is one of the highest arch dams in Asia.

- This dam was constructed along with two other dams at Cheruthoni and Kulamavu.
- Together, the three dams and two saddle dams, Kulamavu Saddle Dam (Near Junction) and Kulamavu Saddle Dam (Right Bank) have created an artificial lake in the area.

Mount Manipur

Context

- The Union government rechristened Mount Harriet, a historical tourist spot in the Andaman and Nicobar islands, **as 'Mount Manipur'**.

About

- There has been a **"significant contribution"** the North-eastern state had made in resisting the British, especially during the historic 1891 Anglo-Manipur war.
- After the Anglo-Manipur War of 1891, several Manipuris who had fought the British in the war, including **Maharaja Kulachandra Dhwaja Singh**, were exiled to the British penal colony in the Andaman Islands.
- Since the cellular jail (Kalapani) was yet to be built, Kulachandra and the prisoners were kept on Mount Harriet, a hillock in what is now the Ferragunj tehsil of South Andaman district.
- 23 men, including King Kulachandra and his brothers, were "transported for life" to the Andamans.
- The 23 are considered war heroes in Manipur.
- That is why **Mount Harriet is an important symbol of the Anglo-Manipur War of 1891.**

Black Sea

Context

- U.S. Defence Secretary Lloyd Austin urged more defence cooperation among Black Sea allies ahead of a NATO Ministers summit.

About

- The Black Sea is a marginal sea of the Atlantic Ocean lying between Europe and Asia.
- It is bordered by **Bulgaria, Georgia, Romania, Russia, Turkey, and Ukraine.**
- It is supplied by major rivers, principally the Danube, Dnieper, and Don.
- The Black Sea **ultimately drains into the Mediterranean Sea, via the Turkish Straits and the Aegean Sea.**
- The Bosporus Strait connects it to the small Sea of Marmara which in turn is connected to the Aegean Sea via the **Strait of the Dardanelles.**
- To the north, the Black Sea is connected to the **Sea of Azov by the Kerch Strait.**
- The Black Sea covers 436,400 km2 (not including the Sea of Azov), making it the world's largest inland body of water.

Tigray Region

Context

- Recently, airstrikes hit the capital of Ethiopia's Tigray region in an ongoing internal armed conflict.

About

- Tigray is the **northernmost regional state in Ethiopia. Capital and largest city is Mekelle**
- Tigray is bordered by **Eritrea to the north, Sudan to the west, the Amhara Region to the south and the Afar Region to the east and southeast.**
- Tigray region is known for its mountainous terrains that have often helped the people protect their territory from invaders, such as the Greeks, the Turkish, and the Italians.
- The Tigray Region is the homeland of the **Tigrayan, Irob and Kunama peoples.**

Paradip Numaligarh Crude Pipeline (PNCPL)

Context

- A pipeline 'Right to Use (RoU)' sharing agreement was inked between Numaligarh Refinery Limited (NRL) and Indradhanush Gas Grid Limited (IGGL).

About

- NRL is in the process of **laying the 1,630 KM long ParadipNumaligarh Crude Pipeline (PNCPL),** a crude pipeline <u>originating from Paradip Port in Odisha and traversing through West Bengal, Jharkhand, Bihar, before terminating at its refinery in Numaligarh (Assam).</u>
- IGGL is executing the laying of a natural gas pipeline from Guwahati to Numaligarh as part of its marquee project for connecting India's North-east Region (NER) with the National Gas Grid.
- IGGL's natural gas pipelines will connect Guwahati to major cities of NER like **Itanagar, Dimapur, Kohima, Imphal, Aizwal, Agartala, Shillong, Silchar, Gangtok and Numaligarh.**

Barak Valley

Context

- The defacing of Assamese slogans on hoardings of Jal Jeevan Mission in the Bengali-majority Barak Valley has led to a call for the bifurcation of Assam.

About

- In Barak Valley, Bengali is the official language.
- The Barak Valley is **located in the southern region of the Indian state of Assam**.
- The region is <u>named after the Barak river.</u>
- The Barak valley mainly consists of three administrative districts of Assam - namely **Cachar, Karimganj, and Hailakandi.**
- The main city of the valley is Silchar.

Barbados

Context

- Barbados has elected its first President, a key step in preparations to become a republic and remove Britain's Queen Elizabeth II as head of state of the Caribbean island.

About

- Barbados is an island country in the Lesser Antilles of the West Indies, in the Caribbean region of the Americas, and the most easterly of the Caribbean Islands.
- Its capital and largest city is Bridgetown. It is at roughly 13°N of the equator
- Barbados lies **on the boundary of the South American and the Caribbean Plates.**

Mullaperiyar Dam

Context

- The Supreme Court on October 25 directed the Supervisory Committee to take an immediate and firm decision on the maximum water level that can be maintained at Mullaperiyar dam, amid torrential rain in Kerala.

Mullaperiyar Dam

- Mullaperiyar Dam is a masonry gravity dam **on the Periyar River in Kerala.**
- It is <u>located on the Cardamom Hills of the Western Ghats in Thekkady, Idukki District of Kerala</u>.
- It was constructed between 1887 and 1895
- The Periyar National Park in Thekkady is located around the dam's reservoir.
- The **dam is built at the confluence of Mullayar and Periyar rivers.**
- The dam is located in Kerala on the river Periyar, but is operated and maintained by the neighbouring state of Tamil Nadu.

Sudan

Context

- Members of Sudan's cabinet and a large number of pro-government party leaders were arrested in an apparent coup after weeks of tension between the military and a civilian government.

About

- Sudan is situated in northern Africa, with an 853 km coastline bordering the Red Sea.
- It has land borders with Egypt, Eritrea, Ethiopia, South Sudan, the Central African Republic, Chad, and Libya.
- The central and the northern part have extremely dry, desert areas such as the **Nubian Desert to the northeast** and the **Bayuda Desert to the east**; in the south, there are grasslands and tropical savanna.
- The dry regions are plagued by **sandstorms, known as haboob,** which can completely block out the sun.

Lanzhou

Context

- China placed a Lanzhou – the capital of Gansu province in the country's northwest – under lockdown, ordering them not to leave home except in emergencies, in a bid to eradicate a Covid cluster of just a few dozen confirmed cases.

About

- Lanzhou is the capital and largest city of Gansu Province in Northwest China.
- Located on the banks of the Yellow River, it is a key regional transportation hub.
- The city is also a center for heavy industry and petrochemical industry.

Katol Meteorite

Context

- A large meteor shower occurred near the town of Katol in Nagpur.

Details

- Studies revealed that the host rock was mainly **composed of olivine, an olive-green mineral.**
- **Olivine is the most abundant phase in our Earth's upper mantle.**
- Our Earth is composed of different layers including the outer crust, followed by the mantle and then the inner core.
- By studying the composition of these meteorite fragments, researchers have unravelled the composition expected to be present in the Earth's lower mantle which is at about 660 km deep.

Findings

- Katol Meteorite reports the first natural occurrence of a mineral called bridgmanite.
- The mineral was named in 2014 after Prof. Percy W. Bridgman, recipient of the 1946 Nobel Prize in Physics.
- About **80% of the Earth's lower mantle is made up of bridgmanite**.
- By studying this meteorite sample, scientists can decode how bridgmanite crystallized during the final stages of our Earth's formation.

Sela Tunnel

Context

- Sela Tunnel for Tawang likely to be completed before deadline.

About

- Sela is a strategic tunnel under construction in Arunachal Pradesh.
- It will be ready ahead of deadline by June 2022, permitting swifter and soldierto forward areas near the Line of Actual Control (LAC) in Tawang sector in all-weather conditions.
- Sela will be the longest twin-lane tunnel above 13,000 feet in the world, and will cut down travel time to Tawang by at least one hour as well as provide all-weather connectivity,
- The Sela tunnel is a part of the Balipara-Charduar-Tawang road, one of the key strategic projects near the Chinese border.

Significance

- Sela Tunnel, located in West Kameng district of Arunachal Pradesh, will play a crucial role in bolstering national security and ensuring the region's socio-economic development.
- All-weather connectivity in this critical sector is critical.
- The Sela tunnel project will result in speedy mobilisation of troops and equipment as also enhance the army's logistics support capability.
- This is important as China has built roads right up to its anticipated ingress points.

Cumbrevieja Volcano

In News

- The 2021 Cumbre Vieja eruption began in September 2021.

Details

- It is a flank eruption at the Cumbre Vieja volcanic ridge comprising the southern half of the Spanish island of La Palma in the Canary Islands.
- It is the first volcanic eruption on the island since the eruption of Teneguía in 1971.

GS-II
POLITY

National Investigation Agency

Context

- The National Investigation Agency (NIA) **carried out multiple searches on the residences of several traders associated with the cross-Line of Control (LoC**) trade in Poonch district of the PirPanjal valley.

Background

- The National Investigation Agency **(NIA) was constituted in 2009 under the provisions of the National Investigation Agency Act, 2008 (NIA Act).**
- It is the central counter-terrorism law enforcement agency in the country.
- The NIA was established in the backdrop of the infamous 2008 Mumbai terror attacks, popularly known as the 26/11 incident.
- This national tragedy led to the realization of the need for a separate federal agency to deal with terror-related crimes in the country.
- The NIA works under the administrative control of the Ministry of Home A airs, Government of India.
- The state government extends all assistance and co-operation to the NIA for investigation of the offences specified under the NIA Act.

Jurisdiction of NIA

- The NIA has concurrent jurisdiction to investigate and prosecute the offences affecting the sovereignty, security and integrity of India, security of state, friendly relations with foreign states and offences under various Acts enacted to implement international treaties, agreements, conventions and resolutions of the UNO, its agencies and other international organizations.
- The NIA is empowered to probe terror attacks including bomb blasts, hijacking of aircrafts and ships, attacks on nuclear installations and use of weapons of mass destruction.
- In 2019, the jurisdiction of the NIA was extended.
- Consequently, the NIA is also empowered to probe the offences relating to human trafficking, counterfeit currency or bank notes, manufacture or sale of prohibited arms, cyber-terrorism and explosive substances.

National Investigation Agency Amendment Act 2019

- It applied the provisions of the NIA Act also to **persons who commit a scheduled offence beyond India against Indian citizens or affecting the interest** of India.
- It provided that the **officers of the NIA shall have the similar powers, duties, privileges and liabilities being exercised by the police officers in connection** with the investigation of offences, not only in India but also outside India.
- It empowered the **central government, with respect to a scheduled offence committed outside India, to direct the NIA to register** the case and take up investigation as if such offence had taken place in India.
- It provided that the central government and the state governments may designate Sessions Courts as Special Courts for conducting the trial of offences under the NIA Act.

- It inserted certain new offences in the Schedule of the NIA Act.

Right to Move

Context
- The Supreme Court on Monday **asked 43 farmers' organizations and leaders listed by the Haryana Government to respond to a petition** filed by a Noida resident who claims her right to free movement on public roads has been choked by their protests to repeal three controversial farm laws.

About Freedom of Movement
- Article 19(1)(d) of The **Indian Constitution guarantees to all Citizens of India the Right "to move freely throughout the territory** of India.
- The freedom of **movement has two dimensions, viz, internal (right to move inside the country) and external (right to move out of the country and right to come back to the country).**
- Article 19 protects only the first dimension. The second dimension is dealt by Article 21 (right to life and personal liberty).

Grounds of Restrictions
- According to clause (5) of Article 19 of Indian Constitution State may impose reasonable restrictions on the Freedom of movement on two grounds:
  - In the Interest of General Public
  - For the Protection of Scheduled Tribes

Legal Verdict
- Kharak Singh V. State of UP, Supreme Court Held that the right to move freely throughout the territory of India means the right of locomotion which connotes the right to move wherever one likes, and however one likes.
- State of Uttar Pradesh Vs. Kaushalya, Supreme Court held that the right of movement of prostitutes may be restricted on ground of Public Health and in the interest of Public Morals.

Hunarhaats

Context
- VishwakarmaVatika" will be set up at "HunarHaats", to promote and preserve precious traditional skills of artisans and craftsmen where they will also be displaying live how India's traditional exquisite and elegant indigenous handmade products are made.

About HunarHaat
- It is being **organized by ministry of minority affairs.**
- It has **become a "Mega Mission" of indigenous Craft, Cuisine & Culture and economic empowerment of master artisans, craftsmen**.
- The success of "HunarHaat" can be gauged from the fact that about 3 lakh needy master artisans, craftsmen & culinary experts have been provided employment and employment opportunities through "HunarHaat" in the last about 3 years.
- It is not only providing employment opportunities to master artisans and craftsmen, it is also preserving and promoting India's indigenous traditional legacy of master artisans and craftsmen which was on the verge of extinction.
- Training is being provided to master artisans, craftsmen and traditional culinary experts according to modern needs in these "Hunar Hubs"
- They are also being provided national-international markets.

E-Prisons

Context
- The Union Home Ministry has advised the States to update recent photographs of prisoners released on parole/furlough/premature release in the "e-Prisons" and "Interoperable Criminal Justice System" database to generate immediate alerts and facilitate easy tracking in the event of their violating the law.

About E-Prison
- Thee-Prisons, which aims at computerization of the functioning of prisons in the country, has been operationalized in all States and Union Territories.
- e-Prisons data has been integrated with Police and Court system under the Inter-operable Criminal Justice System.

- The Ministry of Home Affairs has provided financial assistance of Rs.99.49 crores to the States and Union Territories (UTs) for this project and all funds have been released to them.
- e-Prisons uses data maintained by the States and Union Territories on the National Prisons Information Portal as per protocols notified for e-Prisons.
- The system can be accessed through the secure National Informatics Centre {NIC} network, exclusively by the authorized officials of Law Enforcement Agencies and Prisons, through Interoperable Criminal Justice System {ICJS}

National Commission for Schedule Caste (NCSC)

Context

- Recently, **NCSC has reprimanded the Punjab government for not helping the victim of Schedule caste**.

About NCSC

Establishment:

- The National Commission for Backward Classes (NCBC) was set up in 1993.
- Later, the 102nd Amendment Act of 2018 conferred a constitutional status on the Commission.
- For this purpose, the **amendment inserted a new Article 338-B in the constitution. Hence, the Commission ceased** to be a statutory body and became a constitutional body.
- It is an Indian constitutional body under the jurisdiction of Ministry of Social Justice and Empowerment.

Membership:

- The Commission consists of a chairperson, a vice-chairperson and three other members.
- They are appointed by the President by warrant under his hand and seal. Their conditions of service and tenure of office are also determined by the President.

Purpose:

- Its objective is to investigate and monitor all issues pertaining to the safeguards provided for the Scheduled Castes under any law for the time being in force or under any order of the Government of India.
- The Commission also enquires into specific complaints with respect to the deprivation of rights and safeguards provided for the Scheduled Castes.
- It was established with a view to provide safeguards against the exploitation of Scheduled Castes and Anglo Indian communities to promote and protect their social, educational, economic and cultural interests, special provisions were made in the Constitution.

GOVERNANCE

Election Commission

Context

- Recently, the Election Commission of India (ECI) **has decided to freeze the election symbol of a Political Party. The Election Symbols (Reservation and Allotment) Order, 1968** empowers the Election Commission to recognize political parties and allot symbols

About

- An **electoral or election symbol is a standardized symbol allocated to a political** party.
- They are **used by the parties during their campaigning and are shown on Electronic Voting Machines (EVMs),** where the voter chooses the symbol and votes for the associated party.
- They were **introduced to facilitate voting by illiterate people, who can't read the name of the party while ca**sting their votes.
- In the 1960s, it was **proposed that the regulation, reservation and allotment of electoral symbols should be done through a law of Parliament, i.e. Symbol Order.**
- In a response to this proposal, **the ECI stated that the recognition of political parties is supervised by the provisions of Election Symbols (Reservation and Allotment) Order, 1968 and so will the allotment of symbols.**
- The Election Commission registers political parties for the purpose of elections and grants them recognition as national or state parties on the basis of their poll performance. The other parties are simply declared as registered-unrecognized parties.
- The recognition determines their right to certain privileges like allocation of the party symbols, provision of time for political broadcasts on television and radio stations and access to electoral rolls.

- Every national party and every state party is allotted a symbol exclusively reserved for its use throughout the country and the states respectively.

Election Symbols {Reservation and Allotment} Order, 1968

- Under Paragraph 15 of the Order, EC can decide disputes among rival groups or sections of a recognized political party staking claim to its name and symbol.
- The EC is the only authority to decide issues on a dispute or a merger under the order. The Supreme Court (SC) upheld its validity in Sadiq Ali and another vs. ECI in 1971.
- This applies to disputes in recognized national and state parties.
- For splits in registered but unrecognized parties, the EC usually advises the warring factions to resolve their differences internally or to approach the court.
- In almost all disputes decided by the EC so far, a clear majority of party delegates/office bearers, MPs and MLAs have supported one of the factions.
- Before 1968, the EC issued notifications and executive orders under the Conduct of Election Rules, 1961.
- The splinter group of the party- other than the group that got the party symbol - had to register itself as a separate party.

Sashkam Centers

Context

- As part of Azadi ka Amrit Mahotsav, a total of 152 Centre for Financial Literacy & Service Delivery (SAKSHAM Centres) across 77 districts of 13 states launched under Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM) of the Ministry of Rural Development.

About Saksham Centre

- About: **Centre for Financial Literacy & Service Delivery (CFL&SD) would act as a one stop solution/single window system for basic financial needs of Self-Help Groups (SHGs)** households in rural areas.
- Objective: To provide financial literacy & facilitate delivery of financial services (savings, credit, insurance, pensions etc.) to SHG members and rural poor.
- Managed By: SHG network, largely at the level of the Cluster Level Federations (CLFs), with the help of trained Community Resource Persons (CRPs).

Birth and Death Database

Context

- The Centre has proposed amendments to the Registration of Births and Deaths Act (RBD), 1969.

Existing Mechanism

- Currently, **the registration of births and deaths is done by the local registrar appointed by States.**
- The State Government may appoint a Registrar for each local area comprising the area within the jurisdiction of a municipality, panchayat or other local authority or any other area or a combination of any two or more of them.

Proposed Changes

- It is **proposed that the Chief Registrar (appointed by the States) would maintain a unified database at the State level and integrate it with the data at the "national level," maintained by the Registrar General of India (RGI)**.
- The amendments will imply that the Centre will be a parallel repository of data.

About Registration of Births and Deaths Act (RBD), 1969

- the Registration of Births and **Death Act (RBD Act) was enacted in 1969** to promote uniformity and comparability in the registration of Births and Deaths across the country and compilation of vital statistics based thereon.
- With the **enactment of the Act, registration of births, deaths and still births has become mandatory in India.**
- The Registrar General, India (RGI) at the Central Government level coordinates and unifies the activities of registration throughout the country. However, implementation of the statute is vested with the State Governments.
- The registration of births and deaths in the country is done by the functionaries appointed by the State Governments. Directorate of Census Operations are the sub-ordinate offices of Office of the Registrar General, India and these offices are responsible of monitoring of working of the Act in their concerned State/UT.
- The Act mandates the use of uniform birth and death reporting forms and certificates throughout the country.
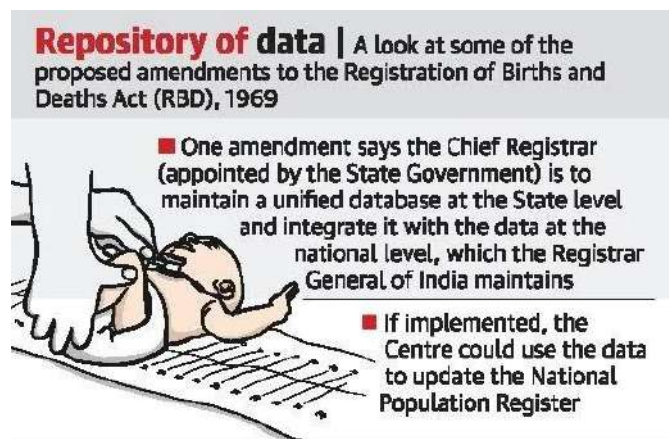
E-Voting

Context

- Future elections in **Telangana could witness a major change in the voting process, with the state government gearing up for a dry run** of the first-ever smartphone-based e-voting system in the country.

About E-Voting

- The system allows **voters to cast their ballots through their mobile phones, by downloading an application.**
- The initiative for the e-voting system was taken by the Telangana State Election Commission (TSEC), and implemented with support from the Emerging Technologies Wing of the state's IT Electronics and Communications Department, with technical development by the Centre for Development of Advanced Computing (CDAC).
- the mobile **application will carry out a three-factor authentication of valid voters using artificial intelligence.**
- This includes **matching voters' names to their Aadhaar cards, live detection of individuals and matching their image with the EPIC (electoral photo identity cards) database** with records dating back to 15 to 20 years.
- Further, Blockchain (Distributed Ledger) technology has been used to secure the de-identified and encrypted votes so that they are maintained as immutable records.

Repository of data | A look at some of the proposed amendments to the Registration of Births and Deaths Act (RBD), 1969

- One amendment says the Chief Registrar (appointed by the State Government) is to maintain a unified database at the State level and integrate it with the data at the national level, which the Registrar General of India maintains
- If implemented, the Centre could use the data to update the National Population Register

Challenges

- In a country **where EVM technology, VVPAT technology (something that we pioneered in and in use after 40 years of experimentation) is being challenged** in the Supreme Court, it would be foolish to think something like this would be accepted.
- **Voting on the internet can be manipulated which is** why ECI has not considered it.
- When **you go to the polling booth, no one knows whom you are voting for. But with such apps, anyone can come home** and bribe people or threaten them to vote for a certain candidate. Secrecy cannot be guaranteed at home.
- there **needs to be a public discussion when such decisions are taken and if the government wants to implement** this, a government order should be passed.
- And why is the statement on this coming from a government office, should it not be solely Election Commission office? How can a government be so proactively involved in this?

SOCIAL JUSTICE

Nipun Bharat Mission

Context

- Ministry of Education has set up a **national steering committee to oversee progress of Nipun Bharat and provide policy-level guidanc**e.
- The steering committee will be chaired by Education Minister Dharmendra Pradhan.

About Nipun Bharat

- The vision of NIPUN Bharat Mission is to **create an enabling environment** to ensure universal acquisition of **foundational literacy and numeracy**, so that every child achieves the desired learning competencies **in reading, writing and numeracy by the end of Grade 3, by 2026-27.**

Objectives of the Mission

3. To make children understand the reasoning in the domains of number, measurement, and shapes; and enable them to become independent in problem solving by way of numeracy and spatial understanding skills.

4. To ensure availability and effective usage of high-quality and culturally responsive teaching learning material in children's familiar/home/mother language(s).

5. To focus on continuous capacity building of teachers, head teachers, academic resource persons and education administrators.

2. To enable children to become motivated, independent, and engaged readers and writers with comprehension possessing sustainable reading and writing skills.

6. To actively engage with all stakeholders i.e., Teachers, Parents, Students and Community, policy makers for building a strong foundation of lifelong learning.

1. To ensure an inclusive classroom environment by incorporating play, discovery, and activity-based pedagogies, linking it to the daily life situations of the children and formal inclusion of children's home languages.

7. To ensure assessment 'as, of and for' learning through portfolios, group and collaborative work, project work, quizzes, role plays, games, oral presentations, short tests, etc.

8. To ensure tracking of learning levels of all students.

- NIPUN Bharat will be implemented by the **Department of School Education and Literacy and a five-tier implementation mechanism** will be set up at the National- State- District- Block- School level in all States and UTs, under the aegis of the centrally sponsored scheme of **Samagra Shiksha**.
- The launch of NIPUN Bharat marks an important step undertaken by the Department of School Education and Literacy, among a series of measures taken for implementation of the National Education Policy 2020.

Implementation
- It will be **implemented by the Department of School Education and Literacy**.
- Under the aegis of the centrally sponsored scheme of Samagra Shiksha a five-tier implementation mechanism will be set up at the National- State- District- Block- School level in all States and UTs.

Focus Area
- NIPUN **Bharat envisages making the experience of learning at the foundational stage Holistic, Integrated, Inclusive, Enjoyable, and Engaging**.
- The focus of the programme is on providing access **and retaining children in foundational years of schooling; development of high quality and diversified Student and Teacher Resources** and Learning Materials; teacher capacity building; and tracking the progress of each child in achieving learning outcomes.
- To support and encourage students, along with their schools, teachers, parents, and communities, in every way possible, to help realise the true potential of children and propel the country to new heights.

Expected Outcomes
- **Foundational skills enable to keep children in class thereby** reducing the dropouts and improve transition rate from primary to upper primary and secondary stages.
- **Activity based learning and a conducive learning environment** will improve the quality of education.
- **Innovative pedagogies such as toy-based and experiential learning** will be used in classroom transactions thereby making learning a joyful and engaging activity.
- Intensive capacity building of teachers will make them empowered and provide greater autonomy for choosing the pedagogy.

Urbanization

Context
- Mumbai lost 81% of its open land (barren spaces without any vegetation), 40% green cover (forests & scrublands) and approximately 30% of its water bodies (lakes, ponds, floodplains) between 1991 and 2018, while the built-up area (areas developed upon) rose by 66% in the same period.
- It concludes that the city witnessed a 2-degree Celsius average temperature rise across 27 years.
- With this pace of urbanization and landscape transformation, it is expected that the Urban Heat Island intensity will further increase in the city.

About Heat Island
- Heat islands are urbanized areas that experience higher temperatures than outlying areas.
- Structures such as buildings, roads, and other infrastructure absorb and re-emit the sun's heat more than natural landscapes such as forests and water bodies.
- Urban areas, where these structures are highly concentrated and greenery is limited, become "islands" of higher temperatures relative to outlying areas.
- Daytime temperatures in urban areas are about 1–7°F higher than temperatures in outlying areas and nighttime temperatures are about 2-5°F higher.
- It is the first-ever national database of unorganized workers including migrant workers, construction workers, gig and platform workers, etc.

Impacts of Heat Island
- Heat islands **increase both overall electricity demand, as well as peak energy demand**.
- Heat islands **contribute to higher daytime temperatures, reduced nighttime cooling, and higher air-pollution levels. These,** in turn, contribute to heat-related deaths and heat-related illnesses such as general discomfort, respiratory difficulties, heat cramps, heat exhaustion, and non-fatal heat stroke.
- **High temperatures of pavement and rooftop surfaces can heat up storm water runoff, which drains into storm sewers and raises** water temperatures as it is released into streams, rivers, ponds, and lakes. Water temperature affects all aspects of aquatic life, especially the metabolism and reproduction of many aquatic species.
- **Excessive heat is a financial burden for low-income households**.

Concept of Heat Equity

- Heat equity refers to the development of policies and practices that mitigate heat islands and help people adapt to the impacts of extreme heat in a way that reduces the inequitable distribution of risks across different populations within the same urban area.

Heat island and Climate Change

- our warming climate will increase already higher temperatures in heat island areas.
- Second, cooling strategies to reduce heat islands can help communities adapt to the impacts of climate change as well as lower the greenhouse gas emissions that cause climate change.

Unorganized Portal

Context

- Over four crore unorganized sector workers have been registered on the e-Shram portal in under two months of its launch.
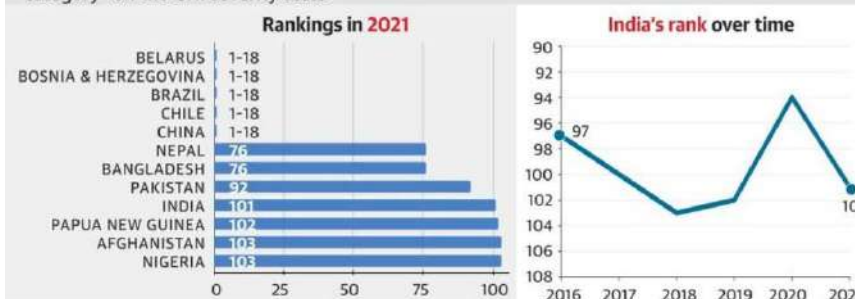
About E-Shram Portal

- **Ministry of Labor& Employment has developed eSHRAM portal for creating a National Database of Unorganized Workers (NDUW),** which will be seeded with Aadhaar.
- It will **have details of name, occupation, address, educational qualification, skill types and family details etc.** for optimum realization of their employability and extend the benefits of the social security schemes to them.
- It is the **first-ever national database of unorganized workers including migrant workers, construction workers, gig and platform** workers, etc.

Objectives

- Creation of a centralized database of all unorganized workers (UWs) including Construction Workers, Migrant Workers, Gig and Platform workers, Street Vendors, Domestic Workers, Agriculture Workers, etc., to be seeded with Aadhaar.
- To **improve the implementation efficiency of the social security services for the unorganized workers**. (ii) **Integration of Social Security Schemes meant for UWs being administered by MoLE and subsequently those run by other ministries** as well.
- **Sharing of information in respect of registered unorganized workers with various stakeholders such as Ministries/ Departments/ Boards/ Agencies/ Organizations** of the Central & State Governments through APIs for delivery of various social security and welfare schemes being administered by them.
- Portability of the social security and welfare benefits to the migrant and construction workers.
- Providing a comprehensive database to Central and State Governments for tackling any National Crises like COVID-19 in future.

Who can register in e-Shram (NDUW) Portal?

- Any individual satisfying following condition can register on the portal:

An unorganized worker (UW).

- Age should be between 16-59 years.
- Not a member of EPFO/ESIC or NPS (Govt. funded)

Who is Unorganized Worker?
- Any worker who is a home based-worker, self-employed worker or a wage worker in the unorganized sector including a worker in the organized sector who is not a member of ESIC or EPFO or not a Govt. employee is called an Unorganized Worker.

Global Hunger Index

Context
- India was ranked 101 in the Global Hunger Index (GHI) for 2021 from 94 in the previous year, trailing behind its South Asian neighbors Pakistan, Bangladesh and Nepal.

Report Finding
- The report **termed the level of hunger in India as "alarming**".
- The report said that wasting among children in India increased from 17.1% between 1998 and 2002 to 17.3% between 2016 and 2020.
- Though India showed improvement in indicators such as the under-5 mortality rate, prevalence of stunting among children and prevalence of undernourishment owing to inadequate food remained high.
- worsening conflict, weather extremes associated with global climate change, and the economic and health challenges associated with the covid-19 pandemic are all driving hunger.
- it is difficult to be optimistic in 2021 because the forces driving hunger are overpowering good intentions and lofty goals.

About Global Hunger Index
- The GHI has been **brought out almost every year by Welthungerhilfe (lately in partnerships with Concern Worldwide) since 2000**
- The GHI slots **countries on a scale ranging from "low" hunger to "moderate", "serious", "alarming", and "extremely alarming".**
- India is **one of the 47 countries that have "serious" levels of hunger.**
- A low score gets a country a higher ranking and implies a better performance.
- The reason for mapping hunger is to ensure that the world achieves "Zero Hunger by 2030" — one of the Sustainable Development Goals laid out by the United Nations.
- It is for this reason that GHI scores are not calculated for certain high-income countries.
- In a formal sense, GHI is calculated by mapping the level of calorie intake.

Calculation of Global Hunger Index
- **Undernourishment (which reflects inadequate food availability):** calculated by the share of the population that is undernourished (that is, whose caloric intake is insufficient).
- **Child Wasting (which reflects acute undernutrition):** calculated by the share of children under the age of five who are wasted (that is, those who have low weight for their height).
- **Child Stunting (which reflects chronic undernutrition):** calculated by the share of children under the age of five who are stunted (that is, those who have low height for their age).
- **Child Mortality (which reflects both inadequate nutrition and unhealthy environment):** calculated by the mortality rate of children under the age of five (in part, a reflection of the fatal mix of inadequate nutrition.

Digisaksham Programme

Context
- Recently, the Union Labor Ministry and Microsoft India have jointly launched digital Skilled platform — DigiSaksham — to enhance youth employability.
- This joint initiative is an extension of the ongoing programs to support the youth from rural and semi-urban areas.

Key Points About
- Free of cost training in digital skills including basic skills as well as advanced computing, Will be provided to more than 3 lakh youths in the first year.
- Priority will be **given to the job-seekers of semi urban areas belonging to disadvantaged communities, including those who** have lost their jobs due to Covid-19 pandemic.
- Training would be conducted at the Model Career Centers (MCCs) and National Career Service Centers (NCSC) for Scheduled Castes (SCs)/Scheduled Tribes (STs) across the country.
- Implemented by: Aga Khan Rural Support Programme India (AKRSP-1).
- **AKJRSP-I is a non-denominational**, non-government development organization.
- It **works as a catalyst for the betterment of rural communities** by providing direct support to local communities.

- **Role of NCS Portal**: The Job Seekers can access the training through National Career Service (NCS) Portal.
- **NCS Portal is a one-stop solution that provides a wide array** of employment and career related services to the citizens of India. It is implemented by the Ministry of Labor and Employment.

Need

- To bridge the gap of India's digital divide, placing the country on the path to inclusive economic recovery and preparing India's talent to thrive in a digital future catering not only to the needs of the domestic economy but also to tap the overseas employment opportunities.

Other Initiatives for Youth Employment

- Pradhan Mantri Kaushal Vikas Yojana 3.0
- Generation Unlimited in India (YuWaah)
- National Career Service
- Prime Minister's Employment Generation Programme (PMEGP)
- Pradhan Mantri Mudra Yojana (PMMY)
- Pradhan Mantri Rojgar ProtsahanYojana (PMRPY)
- Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA)

Jal Jeevan Mission

Context

- Gove**rnment has launched the Jal Jeevan Mission (JJM) mobile application**, seeking top leverage the technological advancements to ensure that villages and rural households get access to clean drinking water.

About Mobile Application

- the **mobile application will provide details of water infrastructure, an Aadhaar-verified data** set of beneficiaries, and water quality and contamination-related information for each village.
- The **information will be available to users on a public forum alongside specific data for each** village, district and state-level bodies concerning water.

Role of technology in powering Jal Jeevan mission

- Apart from the mobile application, the government has also put in place Internet of Things (IoT)-based sensors, flow meters and water-quality detection kits to achieve cost-effective solutions for providing clean tap water to every rural household in the country by 2024.
- The **Jal Shakti ministry has been maintaining a JJM dashboard to show the coverage of tap water connections** across states.
- The **water quality management information system provides details of water samples received and tested across** labs and states.
- The **mobile app will bring all this data under one** umbrella.
- Sensors not just monitors the flow of water in the pipelines, but also checks for turbidity and chlorination in water.

About

- Jal Jeevan **Mission is envisioned to provide safe and adequate drinking water through individual household** tap connections by 2024 to all households in rural India.
- The **programme will also implement source sustainability measures as mandatory elements, such as recharge** and reuse through grey water management, water conservation, rain water harvesting.
- The Jal **Jeevan Mission will be based on a community approach to water and will include extensive Information, Education** and communication as a key component of the mission.
- JJM looks to create a jan andolan for water, thereby making it everyone's priority.

Objectives

- To provide **FHTC to every rural household**.
- To **prioritize provision of FHTCs in quality affected areas, villages in drought prone and desert areas, Sansad Adarsh Gram Yojana (SAGY)** villages, etc.
- To provide **functional tap connection to Schools, Anganwadi centres, GP buildings, Health centres, wellness centres and community** buildings
- To **monitor functionality of tap connections**.

- To **promote and ensure voluntary ownership among local community by way of contribution in cash, kind** and/ or labor and voluntary labor (shramdaan)
- To **assist in ensuring sustainability of water supply system, i.e. water source, water supply infrastructure**, and funds for regular O&M
- To **empower and develop human resource in the sector such that the demands of construction, plumbing, electrical, water quality management**, water treatment, catchment protection, O&M, etc. are taken care of in short and long term
- To bring awareness on various aspects and significance of safe drinking water and involvement of stakeholders in manner that make water everyone's business

INTERNATIONAL RELATIONS

Indo-Pacific Oceans Initiative (IPOI)

Context
- Prime Minister Modi participated in the 18th India-ASEAN Summit at **Brunei, the current Chair of ASEAN.**

Highlights of the summit
- It highlighted the milestone of **30th anniversary of India-ASEAN Partnership**, the leaders announced the Year **2022 as India-ASEAN Friendship Year**.
- Centrality of **ASEAN in India's Act East Policy** and in India's Vision for the wider Indo-Pacific Vision was emphasized.
- Building upon the synergies between the **ASEAN Outlook for the Indo-Pacific (AOIP) and India's Indo-Pacific Oceans Initiative (IPOI)**, adoption of the India-ASEAN Joint Statement on cooperation for peace, stability and prosperity in the region.
- India has contributed medical supplies worth USD 200,000 to ASEAN's humanitarian initiative for Myanmar and USD 1 million for ASEAN's Covid-19 Response Fund.

About the Indo-Pacific Oceans Initiative
- In 2019 Prime Minister Modi launched the Indo-Pacific Oceans Initiative (IPOI) at the **East Asia Summit.**
- IPOI seeks to ensure **security and stability of the regional maritime** domain.
- IPOI is an **open, non-treaty based initiative** for countries to work together for cooperative and collaborative solutions to common challenges in the region.
- IPOI draws on existing regional architecture and mechanisms to focus on seven pillars:
  o Maritime Security
  o Maritime Ecology
  o Maritime Resources
  o Capacity Building and Resource Sharing
  o Disaster Risk Reduction and Management
  o Science, Technology and Academic Cooperation
  o Trade Connectivity and Maritime Transport
- Australia is the lead partner on the maritime ecology pillar and is looking to drive scientific collaboration and share best practice across the Indo-Pacific on reducing marine pollution, with a focus on plastic waste.

High Ambition Coalition (HAC) for Nature and People

Context
- India **officially joined the High Ambition Coalition for Nature and People**, a group of more than 70 countries encouraging the adoption of the global goal to protect 30x30.

About High Ambition Coalition for Nature and People
- HAC members currently include a mix of countries in the global north and south; **European, Latin American, Africa and Asia countries** are among the members.
- **India is the first of the BRICS bloc of major emerging economies (Brazil, Russia, India, China and South Africa) to join the HAC.**
- The **global 30x30 goal is currently a centerpiece of the treaty.**
- High Ambition Coalition for Nature and People, was initiated at the **"One Planet Summit" in Paris in January 2021.**

- This coalition **aims to promote an international agreement to protect at least 30 % the of world's land and ocean by 2030.**

India-Denmark Cooperation

Context

- India, Denmark have inked four agreements and decided to expand cooperation.

More about News

- The agreements were signed in the field of **Skill Development and Entrepreneurship, Traditional Knowledge Digital Library, on establishing a Centre of Excellence** towards natural refrigerants for tropical climates with potential applications and on mapping of ground water resources and aquifers.
- The two countries also decided to **expand ties in the fields of health and agriculture**.
- India and Denmark are two democratic nations and both believe in an international system based on rules.
- The two countries underlined the warm and friendly relations based on **shared principles and values of democracy, rule of law and respect for human rights**.

Conference on Interaction and Confidence-Building Measures in Asia (CICA)

Context

- External Affairs Minister S Jaishankar attended the 6th Ministerial meeting of the Conference of Interaction and Confidence Building Measures in Asia (CICA) in Nur-Sultan (Kazakhstan).
- Kazakhstan is the current Chair and initiator of the CICA Forum.

About CICA

- The Conference on Interaction and Confidence-Building Measures in Asia (CICA) is an **inter-governmental forum** for enhancing cooperation towards promoting peace, security and stability in Asia.
- It is a forum based on the recognition that there is close link between peace, security and stability in Asia and in the rest of the world.
- The key idea of the Conference is based on the <u>priority of the indivisibility of security, joint initiative and mutually beneficial interaction of small and large states.</u>
- The idea of convening the CICA was first proposed by Kazakhstan President Nursultan Nazarbayev on 5 October 1992, at the **47th Session of the United Nations General Assembly**.
- The two founding documents of CICA are **Declaration on the Principles Guiding Relations and the Almaty Act.**
- CICA pursues its policy based on the **principles of sovereign equality, non-interference in internal affairs of the Member States** and economic, social and cultural cooperation to achieve its **main objective of enhancing cooperation through elaborating multilateral approaches towards promoting peace, security and stability** in Asia.
- **All decisions** within CICA framework are taken **by consensus**.
- To be a member of CICA, a **state must have at least a part of its territory in Asia.**
- **The CICA Summit is convened every four years in order to conduct consultations, review the progress of, and set priorities for CICA activities.**
- **India is a founding member of this organization.**

UN Human Rights Council

Context

- India **re-elected to UN Human Rights Council for record 6thterm** with overwhelming majority

About UNHRC

- The Human Rights Council is an **inter-governmental body** within the United Nations system responsible for strengthening the promotion and protection of human rights around the globe and for addressing situations of human rights violations and make recommendations on them.
- It has the ability to **discuss all thematic human rights issues and situations that require its attention throughout the year.**
- It meets at the **UN Office at Geneva.**
- The Council is **made up of 47 United Nations Member** States which are elected by the UN General Assembly.
- The Human Rights Council **replaced the former United Nations Commission on Human Rights.**
- **Members of the Council serve for a period of three years and are not eligible for immediate re-election after serving two consecutive terms.**

New Quadrilateral

Context
- India's External Affairs Minister takes part in new quadrilateral with **Israel, UAE and U.S.**

More about news
- It is a new grouping that **builds on ongoing cooperation between the U.S.-Israel-UAE after the Abraham Accords** last year that saw UAE and Israel establish diplomatic ties.
- It aims at **expanding economic and political cooperation in the Middle East and Asia,** including through trade, combating climate change, energy cooperation, and increasing maritime security.
- **International Federation of Indo-Israel Chambers of Commerce (IFIIC)** has predicted that the potential for agreements backed by Israeli innovation, UAE funding and Indian manufacturing, given India's close ties and strategic partnership with the two other countries could cross $100 billion by 2030.

HEALTH

Mudra Toolbox

Context
- Indian Council of Medical Research (ICMR) has released the Multilingual Dementia Research and Assessment (MUDRA) Toolbox in five Indian languages - Hindi, Bengali, Telugu, Kannada and Malayalam.

About
- MUDRA Toolbox is a comprehensive tool specifically to diagnose dementia in the Indian population.
- The toolbox includes various cognitive tests to assess different domains of cognition such as attention and executive function, memory, language, and visuospatial functions.
- MUDRA Toolbox is an **initiative undertaken by ICMR Neuro-Cognitive Tool Box (ICMR -NCTB) consortium** to transform India's dementia and mild cognitive impairment research and clinical practices.

Dementia
- Dementia is a general term for loss of memory, language, problem-solving and other thinking abilities that are severe enough to interfere with daily life. Alzheimer's is the most common cause of dementia.
- Though dementia mostly affects older adults, it is **not a part of normal aging.**
- What increases the risk for dementia – Age, Family history, Poor heart health, Traumatic brain injury
- Treatment of dementia depends on the underlying cause. Neurodegenerative dementias, like Alzheimer's disease, have no cure, though there are medications that can manage symptoms.
- Leading a healthy lifestyle, including regular exercise, healthy eating, and maintaining social contacts, decreases chances of developing chronic diseases and may reduce number of people with dementia.

Dlx1 Gene

Context
- Researchers at the Indian Institute of Technology (IIT), Kanpur, have discovered a particular gene called DLX1.

About
- This gene plays an important role in the development of jaws, skeleton, and interneurons in the brain have an important role to play in the growth and development of prostate cancer.
- The DLX1 protein **is found at elevated levels in prostate cancer patients**, the reason why the DLX1 protein has been used as a urine-based biomarker.
- The researchers found that the DLX1 protein, which is expressed at higher levels in the prostate cancer cells, has a huge role in the growth and development of the tumour and the spread of the cancer to other organs in the body (metastasis).
- 60% of the prostate cancer tissues have higher levels of DLX1 protein.
- And when the team genetically ablated the DLX1 gene that produces the protein, the ability of cancer cells to grow, develop and spread to other parts of the body was reduced.
- Using small molecules as inhibitors, the researchers have shown in mice a new therapeutic strategy to treat people with DLX1-positive prostate cancer.

Scientific Advisory Group for the Origins on Novel Pathogens (SAGO)

Context

- World Health Organization (WHO) has announced the establishment of a scientific advisory group to identify the origin of COVID-19 and other future outbreaks.

About

- The WHO's Scientific Advisory Group for the Origins on Novel Pathogens, or SAGO, will include 26 scientists from the US, China and about two dozen other countries to find out the answer the question of how the novel coronavirus first infected humans.
- The group **will also be responsible for establishing a framework to combat future pandemics.**

Melioidosis

Context

- A made-in-India aromatherapy spray is being pulled off retail giant Walmart's shelves in the United States.
- The spray was reported to contain a bacterium, **Burkholderia pseudomallei**, that causes a rare but deadly disease called melioidosis.

Melioidosis

- Melioidosis, also **called Whitmore's disease**, is an infectious disease that can infect humans or animals.
- The disease is caused by the bacterium *Burkholderia pseudomallei.*
- It is predominately a disease of tropical climates, especially in Southeast Asia and northern Australia.
- The bacteria causing melioidosis are **found in contaminated water and soil**.
- It is spread to humans and animals through direct contact with the contaminated source.
- Most people experience no symptoms. Those who do experience symptoms have signs and symptoms that range from <u>mild, such as fever, skin changes, pneumonia, and abscesses, to severe with inflammation of the brain, inflammation of the joints, and dangerously low blood pressure that causes death.</u>

AY.4

Context

- "AY.4" lineage has been steadily growing in proportion in the UK over the last few months, accounting for 63% of new UK Covid cases in the last 28 days.

About

- The newest mutation of the SARS-COV-2 virus, 'AY.4.2' is a **sub-lineage of the Delta variant** of the infectious virus. It's being currently dubbed as the 'Delta Plus' variant.
- As per leading scientists based out of Columbia University, as many as 75 AY lineages of coronavirus have been identified till now, but the concerning one in question, AY.4 is one such sub-variant which is rapidly branching out, and most particularly, deemed to be steadily rising in parts of the UK.

Read about other strains: https://www.iasgyan.in/blogs/bengal-strain-all-about-mutation

National Formulary of India (NFI)

Context

- Union Minister for Health and Family Welfare Dr. Mansukh Mandaviya launched the Sixth Edition of National Formulary of India (NFI).

About

The salient feature of this edition includes:

- NFI has been published by Indian Pharmacopoeia Commission (IPC) to promote rational use of medicines in the country.
- The 6th Edition of NFI 2021 has been drafted by adopting the principle 'do not miss critical and do not overload' the information by revising the appendices, chapters and drug monographs.
- 34 therapeutic categories chapters including 591 drug monographs and 23 appendices are included in this edition.
- The NFI is aligned with National Health Programmes and National List of Essential Medicines (NLEM).

Anti-Diabetic Medicines

Context

- Drug price regulator National Pharmaceutical Pricing Authority (NPPA) said it has fixed the ceiling prices for 12 anti-diabetic generic medicines, including glimepiride tablets, glucose injection and intermediate acting insulin solution.

Details

- To make it possible for every Indian to afford medical treatment, NPPA has fixed the ceiling prices of 12 anti-diabetic generic medicines. These include glimepiride tablet.

NPPA

- The National Pharmaceutical Pricing Authority (NPPA) is a government regulatory agency that controls the prices of pharmaceutical drugs in India.
- National Pharmaceutical Pricing Authority (NPPA) was constituted vide Government of India Resolution in 1997 as an **attached office of the Department of Pharmaceuticals (DoP), Ministry of Chemicals and Fertilizers** as an **independent Regulator for pricing of drugs and to ensure availability and accessibility of medicines at affordable prices.**

Functions

- To implement and enforce the provisions of the Drugs (Prices Control) Order in accordance with the powers delegated to it.
- To deal with all legal matters arising out of the decisions of the Authority.
- To monitor the availability of drugs, identify shortages, if any, and to take remedial steps.
- To collect/ maintain data on production, exports and imports, market share of individual companies, profitability of companies etc, for bulk drugs and formulations.
- To undertake and/ or sponsor relevant studies in respect of pricing of drugs/ pharmaceuticals.
- To recruit/ appoint the officers and other staff members of the Authority, as per rules and procedures laid down by the Government.
- To render advice to the Central Government on changes/ revisions in the drug policy.
- To render assistance to the Central Government in the parliamentary matters relating to the drug pricing.

E-Cigarette

Context

- An analysis by the Herbert Wertheim School of Public Health and Human Longevity Science at University of California San Diego and UC San Diego Moores Cancer Center, published in the journal JAMA Network Open, has found that e-cigarette use — even on a daily basis — did not help smokers successfully stay off cigarettes.

About

- E-cigarettes have often been suggested as a potential means to help smokers quit.
- These are **battery-operated devices that heat a liquid made of nicotine, flavourings and other chemicals** to make an aerosol that users inhale into their lungs.

Prohibition of Electronic Cigarettes Bill, 2019

- In 2020, Parliament of India has passed the bill. Its salient Features are:
- **Definition:** The Bill defines e-cigarettes as electronic devices that heat a substance, which may contain nicotine and other chemicals, to create vapour for inhalation. These e-cigarettes include all forms of electronic nicotine delivery systems, heat-not-burn products, e-hookahs, and other similar devices.

How e-cigarettes work

1 Device is activated when user inhales from the mouthpiece
2 Atomiser heats up liquid in cartridge
3 Vapour is produced and the LED indicator lights up

Mouthpiece
Heating coil
Atomiser
Microprocessor — Controls atomiser and light
LED indicator
Lithium-ion battery — Can be recharged from a wall outlet, car, or a USB port.
Replaceable cartridge — Stores flavoured liquid which contains propylene glycol and varying amount of nicotine.

- **Banning of e-cigarettes:** The Bill prohibits the production, manufacture, import, export, transport, sale, distribution and advertisement of e-cigarettes in India.
- Violation of this provision will be punishable with **imprisonment of up to one year, or a fine of up to one lakh rupees, or both.**
- For any subsequent offence, the person will be punishable with an imprisonment of **up to three years**, along with a fine of up to five lakh rupees.
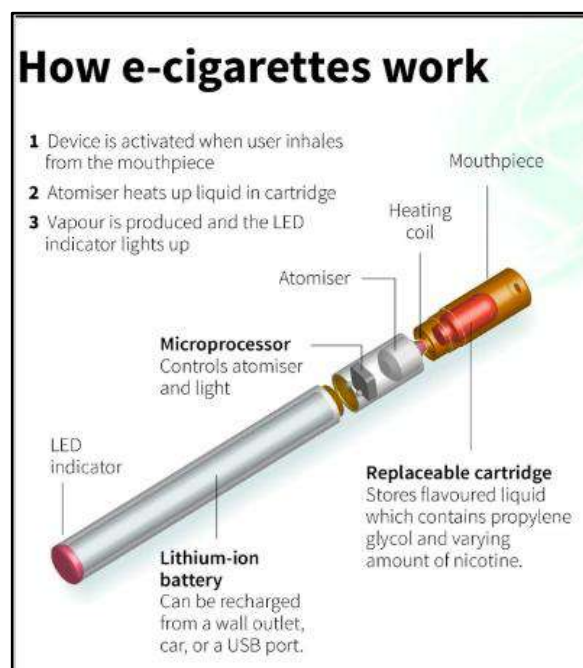
Dengue and Platelets

Context

- Dr Vikas Bhutani, Director, Internal Medicine, Fortis Hospital answered some vital aspects about platelet count in dengue and who can donate platelets.

Dengue

- Dengue is **a mosquito-borne viral infection**, found in tropical and sub-tropical climates worldwide, mostly in urban and semi-urban areas.
- The virus responsible for causing dengue, is called **dengue virus (DENV).**
- There are four DENV serotypes, meaning that it is possible to be infected four times.
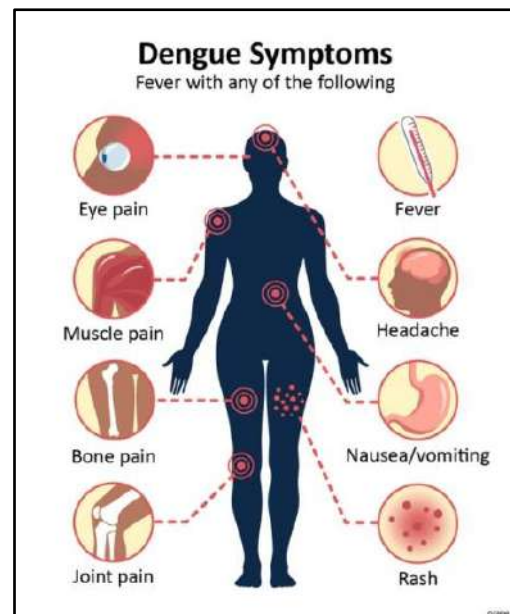
Transmission and Symptoms

- Dengue is transmitted by several species of mosquitoes within the genus Aedes.
- There are four types of dengue strains, and type II and IV are considered to be more severe and normally require hospitalisation.
- The aedes mosquito **breeds in clean stagnant water.**

Treatment

- There is no specific medicine to treat dengue.

Platelets

- Platelets are pieces of very large cells in the bone marrow called megakaryocytes.
- They help form blood clots to slow or stop bleeding and to help wounds heal.
- In the normal human body, the platelet count in dengue ranges from 1.5 lakh to 4 lakh.
- Platelet count in dengue decreases as it suppresses bone marrow, which is the platelet-producing area.
- Antibodies that are produced during this period lead to massive destruction of platelets in dengue.

Dengue Symptoms
Fever with any of the following
Eye pain, Fever, Muscle pain, Headache, Bone pain, Nausea/vomiting, Joint pain, Rash

Bachelor of Sowa Rigpa Medicine and Surgery (BSRMS)

Context

- The University Grants Commission has issued notification recognizing Bachelor of Sowa Rigpa Medicine and Surgery (BSRMS) under the specified Degrees.

About

- Duration of the degree will be of <u>minimum of five years and Ten plus Two (10+2) is fixed as entry qualification</u>.
- UGC recognized BSRMS as a new degree under Medicine & Surgery, Ayurveda, Unani, Homeopathy and Health & Allied Sciences, Pharmacy, Paramedical and Nursing.
- Sowa Rigpa is a traditional and popular medicinal practice in the Himalayan region.
- So far**, only two deemed to be universities**, namely Central Institute of Buddhist Studies (CIBS) in Leh and Central Institute of Higher Tibetan Studies (CIHTS) located in Saranath are offering the degree in Sowa Rigpa medicine.

> The University Grants Commission of India is a **statutory body set up by the Department of Higher Education,** Ministry of Education, in accordance to the UGC Act 1956 and is charged with coordination, determination and maintenance of standards of higher education.It provides recognition to universities in India, and disbursements of funds to such recognized universities and colleges. A proposal to replace it with another new regulatory body called HECI is under consideration by the Government of India.

Polio

Context

- Every year, October 24 is marked as World Polio Day in celebration of the birth of Jonas Salk, the American researcher who developed the first polio vaccine in 1955.

About Polio

- Poliomyelitis (polio) is a highly infectious viral disease **that largely affects children under 5 years of age.**

- The virus is **transmitted by person-to-person spread mainly through the faecal-oral route or,** less frequently, by a common vehicle (e.g. contaminated water or food) and multiplies in the intestine, from where it can **invade the nervous system and cause paralysis.**
- Because polio **is highly contagious, no one is safe until everyone is vaccinated.**
- In 1988, the World Health Assembly adopted a resolution for the worldwide eradication of polio, marking the launch of the Global Polio Eradication Initiative.

Eight Core Industries (Weightage)
Coal (10.33%), Crude Oil (8.98%), Natural Gas (6.88%), Refinery (28.04%), Steel (17.92%), Cement (5.37%), Fertilizer (2.63%), Electricity (19.85%)

- Wild poliovirus cases have decreased by over 99% since 1988.
- Of the 3 strains of wild poliovirus (type 1, type 2 and type 3), wild poliovirus type 2 was eradicated in 1999 and no case of wild poliovirus type 3 has been found since the last reported case in Nigeria in November 2012.
- Both strains have officially been certified as globally eradicated.
- **Wild poliovirus type 1 affects two countries: Pakistan and Afghanistan.**

What is India's situation with regard to the disease?
- India was **declared polio-free in January 2014,** after three years of zero cases.
- The last case due to wild poliovirus in the country was detected on January 13, 2011.
- **Inactivated poliovirus vaccine (IPV) protects** people against all three types of poliovirus.

GS-III
ECONOMY

Core Sector

Context
- Output from India's eight core sectors grew 4.4% in September, the slowest pace of year-on-year growth in seven months.

About Core Sector
- The Office of Economic Adviser, Department for Promotion of Industry and Internal Trade releases Index of Eight Core Industries (ICI).
- ICI measures combined and individual performance of production in selected eight core industries viz. Coal, Crude Oil, Natural Gas, Refinery Products, Fertilizers, Steel, Cement and Electricity.
- The Eight Core Industries comprise 40.27% of the weight of items included in the Index of Industrial Production (IIP).

International Monetary Fund

Context
- International Monetary Fund (IMF) chief economist Gita Gopinath will leave her post and return to Harvard University's economics department in January.

History of IMF
- The IMF, also known as the Fund, was conceived at a UN conference in Bretton Woods, New **Hampshire, United States, in July 1944.**
- Countries **were not eligible for membership in the International Bank for Reconstruction and Development (IBRD) unless they were members of the IMF**.
- IMF, as per Bretton Woods agreement to encourage international financial cooperation, introduced a system of convertible currencies at fixed exchange rates, and replaced gold with the U.S. dollar (gold at $35 per ounce) for official reserve.

Role of IMF
- IMF **focuses on fostering global monetary cooperation, securing financial stability, facilitating and promoting international trade, employment, and** economic growth around the world.
- The IMF is a specialized agency of the United Nations.

Functions of IMF

- **Regulatory functions:** IMF functions as a regulatory body and as per the rules of the Articles of Agreement, it also focuses on administering a code of conduct for exchange rate policies and restrictions on payments for current account transactions.
- **Financial functions**: IMF provides financial support and resources to the member countries to meet short term and medium term Balance of Payments (BOP) disequilibrium.
- **Consultative functions**: IMF is a centre for international cooperation for the member countries. It also acts as a source of counsel and technical assistance.

IMF Quota

- IMF funds come from two major sources – Quota and Loans.
- Quotas which are pooled funds of member nations, generate most IMF funds.
- The size of a member's quota depends on its economic and financial importance in the world.
- Nations with larger economic importance have larger quotas.
- The quotas are increased periodically as a means of boosting the IMF resources in the form of Special Drawing Rights.

Organization structure of IMF

Structure of the International Monetary Fund (IMF)	
Governing Bodies of IMF	**Roles and Responsibilities**
Board of Governors	- Each governor of the Board of Governors is appointed by his/her respective member country. - Elects or appoints executive directors to the Executive Board. - Board of Governors is advised by the International Monetary and Financial Committee (IMFC) and the Development Committee. - An annual meet up between the Board of Governors and the World Bank Group is conducted during the IMF–World Bank Annual Meetings to discuss the work of their respective institutions.
Ministerial Committees 1. International Monetary and Financial Committee (IMFC) 2. Development Committee	- It manages the international monetary and financial system. - Amendment of the Articles of Agreement. - To solve the issues in the developing countries that are related to economic development.
Executive Board	- It is a 24-member board that discusses all the aspects of the Funds. - The Board normally makes decisions based on consensus, but sometimes formal votes are taken.

Published Reports

- Global Financial Stability Report
- World Economic Outlook: it is usually published **twice a year in the months of April and October.**

Battery Energy Storage System (BESS)

Context

- Government has given go ahead for inviting the expression of interest for installation of 1000 MWh Battery Energy Storage System (BESS) as a pilot project.

About the Initiative

- This is the joint effort of both Ministry of New and renewable energy and Ministry of Power.
- **Solar Energy Corporation of India (SECI), a CPSU under Ministry of New and renewable energy**, has called for the expression of interest for procurement of 1000 MWh BESS.

Utility of Battery Energy Storage System

- **Renewable energy along with the energy storage system**
- **Energy storage system as grid element to maximize the use of transmission system and strengthening grid stability** and also to save investment in the augmentation of transmission infrastructure.

- **Storage as an asset for balancing services and flexible operation. The system operator i.e. load dispatchers (RLDCs and SLDCs**) may use storage system for frequency control and balancing services to manage the inherent uncertainty/variations in the load due to un-generation.
- **Storage for distribution system** i.e. it may be placed at the load centre to manage its peak load and other obligations.
- As **a merchant capacity by the energy storage syste**m developer and sell in the power market

Inflation

Context
- Retail inflation, as measured by the Consumer Price Index (CPI), grew at 4.35% in September 2021.
- India's retail inflation tapered down slightly to 6.26 per cent in the month of June 2021

About Inflation
- Inflation refers to a sustained increase in the general price level of goods and services in an economy over a period of time.
- It considers the prices of most goods and services of daily or common use, such as food, clothing, housing, recreation, transport, consumer staples, etc. • Inflation measures the average price change in a basket of commodities and services over time.
- Rate of inflation is the rate of change in general price level which is measured as follows:

## About WPI

Wholesale Price Index (WPI)
- Wholesale Price Index (WPI) measures the changes in the prices of goods sold and traded in bulk by wholesale businesses to other businesses instead of consumers.
- The index basket of the WPI includes commodities falling under the three major groups namely Primary Articles, Manufactured Products and Fuel & Power.
- The WPI basket has a total of 697 items with base year 2011-12:
  ▪ Primary Articles: 117 items
  ▪ Fuel & Power: 16 items
  ▪ Manufactured Products: 564 items
- The prices tracked are mandi price for agricultural commodities, ex-factory price for manufactured products, and examines prices for minerals.
- Weightage given to each commodity covered in the WPI basket is based on the value of production adjusted for net imports.
- WPI basket does not cover services.
- In India, the Office of Economic Advisor (OEA), Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry publishes the WPI.

The WPI is used for the following purposes
- To give the estimates of inflation at the wholesale transaction levels for the economy as a whole. It helps in timely intervention by the monetary authorities to check the inflation particularly in essential commodities before the price increase affects the retail prices.
- Global investors also consider WPI as one of the key macro indicators for investment decisions.
- The Government reviews and revises the base year of the WPI as a regular exercise to capture structural changes occurred in the economy and improve the quality, coverage, and representativeness of the indices.
- The base year of All-India WPI has been changed from 2004-05 to 2011-12 in 2017 to bring it in line with

the base year of other macroeconomic indicators like Index of Industrial Production (IIP) and the Gross Domestic Product (GDP).
- The new series with base year 2011-12=100 was based on the recommendations of the Working Group which was constituted in 2012 under the chairmanship of Late Dr. Saumitra Chaudhuri.
- WPI calculated with 2011-12 base year does not include taxes in order to remove the impact of fiscal policy.
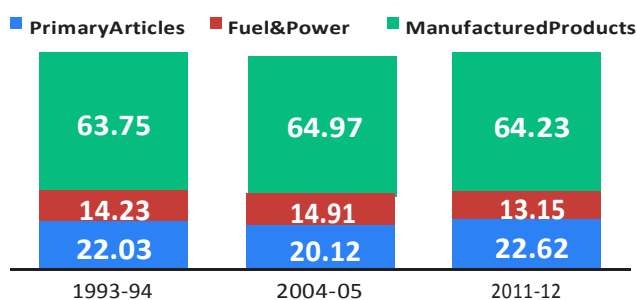
Types of Inflation
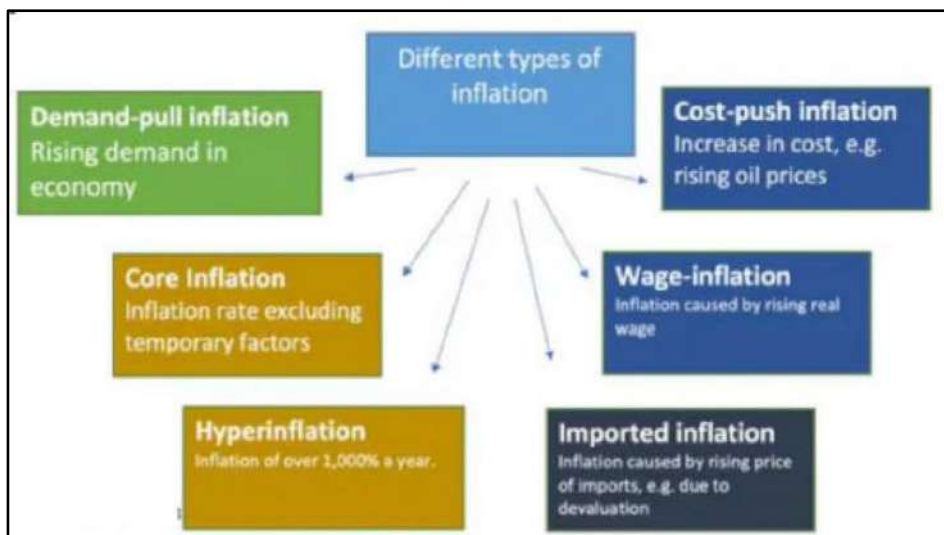
About Consumer Price Index (CPI)

- Consumer Price Index (CPI) measures the inflation at retail level.
- Consumer Price Index (CPI) is a measure of change in retail prices of goods and services consumed by people in a given area with reference to a base year.

The main uses of CPI are the following

- It is widely considered as a barometer of inflation
- Tool for monitoring price stability
- The Reserve Bank of India is now using CPI(Combined) as the as the benchmark for its monetary policy tools like Repo Rate, Reverse Repo Rate.
- According to the Agreement on Monetary Policy Framework signed between the Government and the RBI in 2015 the sole objective of the RBI is price stability and the Consumer Price Index (Combined) is measured as the target inflation.
- Consumer Price Index compiled for four groups of consumers in India
- CPI for Industrial workers CPI(IW)
- Consumer Price Index for Urban Non-Manual Employees (UNME)
- CPI for Agricultural Labourers CPI(AL)
- CPI for Rural Labourers CPI(RL)

Recent Trends of CPI Inflation:
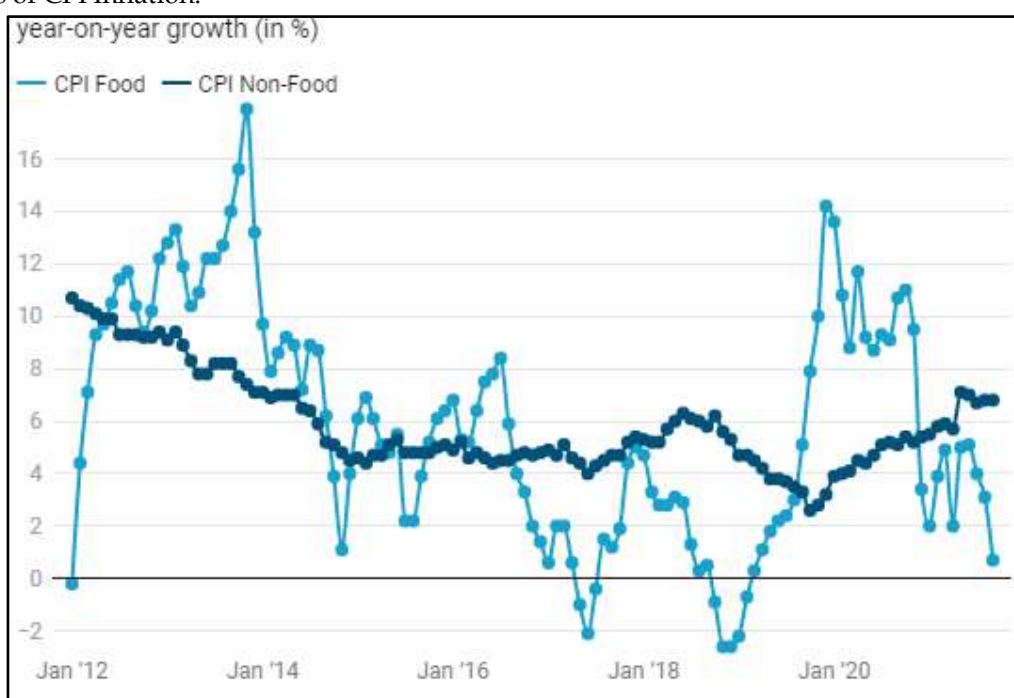
Index of Industrial Production

Context
- India's industrial production rose 11.9% in August, according to official data.

About IIP
- As the name suggests, the Index of Industrial Production (**IIP) maps the change in the volume of production in Indian industries.**
- More formally, it **chooses a basket of industrial products —** ranging from the manufacturing sector to mining to energy, creates an index by giving different weight to each sector and then tracks the production every month.
- Finally, **the index value is compared to the value it had in the same month last year to figure out the economy's industrial** health.
- There are two ways in which IIP data can be viewed. The first is to look at sectoral performance. In this the whole industrial economy is divided into three sectors; the first is manufacturing with a weight of 77.6 per cent in the index, the second is mining with a weight of 14.4 per cent and third is electricity with a weight of 8 per cent.
- The Index of Industrial Production (IIP) is an index which shows the growth rates in different industry groups of the economy in a stipulated period of time.

Calculation of IIP
- The IIP index is computed and **published by the Central Statistical Organisation (CSO)** on a monthly basis.
- It is a composite indicator that measures the growth rate of industry groups classified under,
  - Broad sectors, namely, Mining, Manufacturing and Electricity
  - Use-based sectors, namely Basic Goods, Capital Goods and Intermediate Goods.

Sale of Air India

Context
- Tata Sons subsidiary Talace Pvt. Ltd. emerged as the winning bidder for the **debt-laden national carrier after quoting an enterprise value of 718,000 crore**.
- The government will take a hit of 28,844 crore.

Details
- The Tatas will own a 100% stake in Air India, as also 100% in its international low-cost arm Air India Express and 50% in the ground handling joint venture, Air India

Tata in the sky | Tata Sons will be the new owner of debt-laden national carrier Air India. The sale marks the return of Air India to the Tata group, a pioneer in aviation

1932: JRD Tata pilots Tata Airlines' inaugural flight from Karachi to Bombay

1946: Tata Airlines becomes a public company; renamed Air India Limited

1948: Govt. of India acquires a 49% stake in the carrier

1953: Government nationalises Air India

2007: Air India merges with Indian Airlines, that operates only domestic routes

2012: Govt. approves ₹30,000 crore bailout for Air India, which has over ₹67,000 crore in debt

May, 2018: Govt. attempts to sell 76% stake in Air India; attracts no bidders

Jan, 2020: Govt. launches a second attempt, this time offers 100% stake in Air India

Oct, 2020: Govt.confirms Tata Sons' subsidiary Talace Pvt. Ltd. as the winning bidder

Figure 1: No Copyright Infringement Intended

SATS. network of
- Apart from 141 aircraft and access to a 173 destinations, including 55 international ones, Tatas will also have the ownership of iconic brands such as Air India, Indian Airlines and the Maharajah Special Category Status.

World Trade Organization (WTO)

Context
- The World Trade Organization (WTO)- the global trade body- is facing a serious existential crisis.
- The upcoming WTO ministerial meeting scheduled for next month in Geneva provides an opportunity to rescue this critical global institution from irrelevance.

Details
- The **continuation of the U.S. policy on the WTO is most evident in the sustained crippling of the Appellate Body** (AB).
- The **AB is part of the WTO's dispute settlement mechanism.** It is a permanent body with seven members, and acts as an appellate court hearing appeals from the decisions given by WTO panels.
- However, since December 2019, the AB **has stopped functioning due to rising vacancies. Over the years, the U.S. has consistently blocked** the appointment of AB members.
- The U.S. **also vetoes proposals to find solutions to this impasse**, including stalling the proposal of the European Union to establish an alternative interim appellate arbitration mechanism.
- The number of pending appeals to the AB has increased sharply to around 20 cases.

- Countries now have an easy option not to comply with the WTO panel decisions by appealing into the void.

Challenges with WTO

- **no solution has been found to the public stockholding for food security** purposes despite a clear mandate to do so in the 2015 Nairobi ministerial meeting.
- the WTO **member countries continue to disagree on the need of waiving the Trade-Related Aspects of Intellectual Property Rights (TRIPS)** agreement for COVID-19 related medical products.
- the WTO is **close to signing a deal on regulating irrational subsidies provided for fishing that has led to the overexploitation of marine resources** by countries like China, which is the largest catcher and exporter of fish.

Way Forward

- Prime Minister Narendra Modi, during his recent U.S. visit, rightly pleaded for a rule-based global order.
- Institutional multilateralism would be the ideal antidote to unilateralism and economic nationalism.
- Notwithstanding its flaws, the WTO is the only forum where developing countries like India, not party to any mega plurilateral trade agreements, can push for evolving an inclusive global trading order that responds to the systemic imbalances of extant globalisation.

About WTO

- Intergovernmental organisation which regulates the international trade
- Officially commenced on 1st Jan 1995 under the **Marrakesh Agreement**
- Signed by 123 nations in 1994
- WTO had **replaced GATT (General agreement on tariffs and trade)**
- It deals with agriculture, textiles and clothing, banking, telecommunications, government purchases, industrial standards and product safety, food sanitation regulations, intellectual property and much more.

FUNCTIONS OF WTO

- Forum for trade negotiations
- Handling trade disputes
- Monitoring national trade policies Technical assistance and training for developing countries
- Cooperation with other international organizations

PRINCIPLES OF WTO

- Administering WTO trade agreements
- The basic principles of the WTO (According to the WTO):
- **Trade Without Discrimination:**
  o **Most Favoured Nation (MFN**): treating other people equally
  o **National treatment**: Treating foreigners and locals equally
  o Freer trade: gradually, through negotiation
  o Predictability: through binding and transparency
  o Promoting fair competition
  o Encouraging development and economic reform.

Cost of Borrowing for States

Context

- As many as 17 states raised Rs 22,809 crore at the weekly auctions held on Tuesday, the first auction of the second half of the borrowing season.

Details

- The debt raising is slow this year as many states are meeting their revenue shortfalls by tapping the **financial accommodation being provided by the RBI by way of short-term borrowing through SDF (special drawing facility) and WMA (**ways and means advances) instead of the debt market.

About Ways and Means Advances

Sudhir Shrivastava Committee on WMA

- Based on the recommendations of the Advisory Committee on WMA to State Governments, 2021 — chaired by Sudhir Shrivastava — the RBI had revised the WMA Scheme of States and Union Territories (UTs).

When was Ways and Means Advances introduced?

- The Ways and Means Advances scheme was introduced in 1997.

Purpose of the WMA scheme

- The Ways and Means Advances scheme was introduced to meet mismatches in the receipts and payments of the government.

How does it work?

- The government can avail of immediate cash from the RBI, if required. But it has to return the amount within 90 days. Interest is charged at the existing repo rate.
- If the WMA exceeds 90 days, it would be treated as an overdraft (interest rate on overdrafts is 2 percentage points more than the repo rate).

What is WMA limit?

- The limits for Ways and Means Advances are decided by the government and RBI mutually and revised periodically.

Types of WMA

- There are two types of Ways and Means Advances — normal and special.
- Special WMA or Special Drawing Facility is provided against the collateral of the government securities held by the state. After the state has exhausted the limit of SDF, it gets normal WMA. The interest rate for SDF is one percentage point less than the repo rate.
- The number of loans under normal WMA is based on a three-year average of actual revenue and capital expenditure of the state.

AGRICULTURE

Mukhyamantri Ghasiyari Kalyan Yojana

Context

- The Union Minister of Home Affairs and Minister of Cooperation, Amit Shah launched the Mukhyamantri Ghasiyari Kalyan Yojana and computerization of cooperative societies in Dehradun, Uttarakhand.

Features

- Under this scheme livestock feed will be provided in remote rural areas in mountainous areas under MukhyaMantri Ghasiyari Kalyan Yojana.
- Under this scheme, women do not have to go to the woods for charpatti, as nutritious animal food is served at subsidized rates.
- Cattle breeders in these areas will be provided with prepackaged feed and total mix ration (TMR).
- Mukhyamantri Ghasiyari KalyanYojana will free nearly three and a half lakh women from the burden of forage, along the way it will be a great way to improve the farmers' economy

Significance

- Ghasiyari Kalyan Yojana will come as a **great relief for women who are in difficulties and in danger while gathering forage from the forest.**
- There would be a double benefit in animal health and milk production.
- The income of milk producers will only increase by 1,300 rupees per month.

Assam Agribusiness and Rural Transformation Project and Joha Rice

Context

- The **World Bank** financed Assam Agribusiness and Rural Transformation Project (APART) is promoting Premium Quality Rice (PQR) particularly the Joha through market led demonstrations.

About

- The project provides seeds; fertiliser and need based pesticides to the beneficiary farmers in the integrated crop management demonstrations and learning centre demonstrations, whereas, in mini kits only seed is provided to the farmers.
- The seed of premium quality rice varieties given in non-chronic flood affected areas to the beneficiary farmers is of good quality.
- The seed of traditional rice varieties is **not certified** so the beneficiary farmer can sell this as seed in the informal way, from one farmer to other leading to horizontal spread of seeds.

Joha Rice

- Joha is a variety of rice grown in India, notable for its aroma, delicate and excellent taste.
- **Assam is the largest cultivator of this rice**, it is primarily grown through paddy field farming.
- In Garo Hills it's widely cultivated and it is known as Jaha rice or locally known as mi Jaha.
- Joha rice is grown in Sali/ Kharif season.
- Major Joha varieties included in this are **Kola Joha, KetekiJoha, BokulJoha, KunkuniJoha.**

Agri Stats

Context

- The first consignment of Kashmiri walnuts was sent to Karnataka.

About

- In 2019, world production of walnuts, China contributed 56% of the total.
- Other major producers (in the order of decreasing harvest) were the United States, Iran, and Turkey.
- Kashmir accounts for 90% of India's walnut production.

Groundnut Crop

Context

- Gujarat is expected to harvest a record groundnut crop of 38.55 lakh tonnes during the current kharif season, which is about 8.74% higher when compared to previous year.

About

- Peanut or groundnut (Arachishypogaea), is a species in the legume or "bean" family. The peanut was first domesticated and cultivated in the valleys of Paraguay.
- India is the **second largest producer of groundnuts in the world**.
- China is the largest producer as well as consumer of groundnut in the world.
- Indian groundnuts are available in different varieties: Bold or Runner, Java or Spanish and Red Natal.
- The main Groundnut varieties produced in India are **Kadiri-2, Kadiri-3, BG-1, BG-2, Kuber , GAUG-1, GAUG-10, PG-1 , T-28, T-64, Chandra, Chitra, Kaushal, Parkash, Amber etc.**
- Ground Nuts are important protein crops in India grown mostly under rain-fed conditions.
- **Major Growing States:** Gujarat, Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra ,Rajasthan, Madhya Pradesh, Orissa, and Uttar Pradesh
- **Major Export Destinations (2020-21):** Indonesia, Vietnam Soc Rep, China P Rp, Philippines, Malaysia.

Primary Agriculture Cooperative Societies

Context

- The Union Cooperation Ministry is working on a new central scheme to modernise and digitalise over 97,000 primary agriculture cooperative societies (PACs) spread across the country, with a budget outlay of around Rs 2,000-3000 crore over the next five years.

About

- Primary agriculture cooperative societies (PACs) -- commonly known as agri-cooperative credit societies -- are village-level lending institutions based on cooperative principles.
- They provide short and medium term loans to rural people to meet their financial requirements.
- There are about 97,961 PACs across the country, out of which viable ones are about 65,000.
- PACs are **under the ambit of state government.**

Digitalization of PACs

- After digitalisation of PACs, banking procedures will get smooth and will benefit in auditing.
- Besides, it will ensure the benefit of farm loans reaches the last mile because in a few states agri-credit is still disbursed through PACs.
- Since PACs are under the ambit of state government, **the scheme envisaged will be on a 60:40 basis for five years.**

Di-Ammonium Phosphate (DAP)

Context

- An acute shortage of di-ammonium phosphate (DAP) in Haryana has seen desperate farmers pelting stones at the police, blocking roads in protest, and even resorting to "loot" the fertilizer from a private dealer's outlet in Mahendragarh district of south Haryana.

About

- Diammonium phosphate is one of a series of water-soluble ammonium phosphate salts that can be produced when ammonia reacts with phosphoric acid.
- It is the **world's most widely used phosphorus fertilizer**.
- DAP fertilizer is an excellent source of P and nitrogen (N) for plant nutrition.
- It's **highly soluble** and thus dissolves quickly in soil to release plant-available phosphate and ammonium.
- A notable property of DAP is the alkaline pH that develops around the dissolving granule.

- When applied as plant food, it temporarily increases the soil pH, but over a long term the treated ground becomes more acidic than before upon nitrification of the ammonium.
- DAP **can be used as a fire retardant**.
- It lowers the combustion temperature of the material, decreases maximum weight loss rates, and causes an increase in the production of residue or char.
- For example, a mixture of DAP and other ingredients can be spread in advance of a fire to prevent a forest from burning. It then becomes a nutrient source after the danger of fire has passed.

Cashew

Context
- The Centre said it has taken up an innovative method to control pests in cashew gardens developed by a Kerala-based woman farmer for necessary support and incubation activities.

About
- The woman farmer from Kannur district developed an innovative 'cashew multiples rooting propagation method' **under which multiple roots are generated in a grown up cashew trees, thus improving production per unit of area.**
- It also helps in eco-friendly management of stem and root borers, restores productivity, provides strong anchorage against wind damage/cyclonic storms, and extends plantation life without the necessity of replanting.

Significance
- The method has been found to provide anchorage against wind damage/cyclonic storms, and restores cashew trees from severe attack of cashew stem and root borers in a very eco-friendly and cost-effective way.

Trivia
- Cashew cultivation is undertaken in India in around 10.11 lakh hectares, the highest amongst all the cashew growing countries.
- Maharastra is India's largest Cashew nut producing state.
- Cashew requires average temperature of 16-25 0C and a rainfall of 50-400 cm.
- It flourishes well on poor and rocky soils.

SCIENCE & TECHNOLOGY

Landsat 9

Context
- US space agency NASA has cleared the launch of Landsat 9 by Atlas V rocket..

About
- Landsat 9 is a powerful **Earth-observing satellite.**
- It is a **joint NASA and US Geological Survey (USGS) mission** that will continue the legacy of monitoring Earth's land and coastal regions that began with the first Landsat satellite in 1972.
- The rocket will take Landsat 9 to its orbit 438 miles above Earth.
- Landsat 9 will join its sister satellite, Landsat 8 that was launched in 2013, in orbit in collecting images from across the planet every eight days.
- This calibrated data will continue the Landsat programme's critical role in monitoring the health of Earth and helping people manage essential resources, including crops, irrigation water, and forests.
- It will also **study the boundaries of Earth's magnetic field**, to see how energy from the Sun can break through our planet's magnetic shield, and study how quickly their atmospheres are escaping.

Lucy Mission

Context
- NASA is poised to send its first spacecraft called LUCY <u>to study Jupiter's Trojan asteroids</u> to glean new insights into the solar system's formation 4.5 billion years ago.

About
- The probe is called Lucy after an ancient fossil.
- **Aim:** Its mission is to investigate the group of rocky bodies circling the Sun in two swarms, one preceding Jupiter in its orbital path and the other trailing behind it.

- After receiving boosts from Earth's gravity, Lucy will embark on a 12-year journey to eight different asteroids -- one in the Main Belt between Mars and Jupiter and then seven Trojans.
- Whatever Lucy finds will give us vital clues about the formation of our solar system.

Fossil

- Lucy (Australopithecus), a fossilized hominid of the species Australopithecus afarensis.
- Researchers discovered Lucy the fossil in Ethiopia in 1974.

Blazar

Context

- Blazar 3.5 billion light-years from Earth provides better understanding of physics powering their massive optical fare.

About

- Blazars are one of the most luminous and energetic objects in the universe powered by material falling onto a super-massive black hole at the center of the host galaxy.
- The luminosity being because of their a jet composed of ionized matter traveling at nearly the speed of light towards an observer (the Earth).
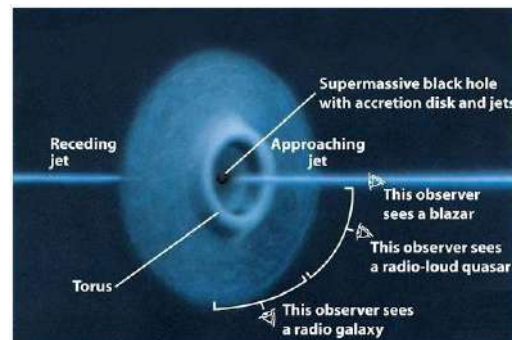
Science Technology and Innovation (STI) Hubs

Context

- The Department of Science and Technology (DST) will be setting up 75 Science Technology and Innovation (STI) Hubs in different parts of the country, exclusively for Scheduled Castes (SCs) and Scheduled Tribes (STs).

Significance

- This will not only promote scientific talent but also contribute to socio-economic development of these communities.
- The training and skill development programmes under the STI Hubs will build the Science Technology and Innovation (STI) Capacities and Capabilities among SC/ST population.
- The STI Hubs also improve the Indigenous Knowledge Systems (IKS) through inputs of S&T and converting them to appropriate technologies for creating better livelihood options.

Metaverse

Context

- Facebook plans to rename itself as Metaverse.

What is Metaverse actually?

- Metaverse is a **parallel, virtual, world where users can have different identities, possessions and characters**.
- In the complex explanation, Metaverse is supposed to be the post-Internet world, a decentralised computing platform.
- The metaverse is being envisioned as a new world order really, where your services could be offered virtually in exchange for other virtual assets, or Cryptocurrencies.
- Interoperability is key to metaverse's success.

India Internet Governance Forum (LIGF)

Context

- India Internet Governance Forum (IIGF) event will be conducted jointly by Ministry of Electronics and IT, NIXI and Multi-stake holder Group from 8th to 11th of November, 2021.

Details

- The India Internet Government Forum is an initiative associated with the UN Internet Governance Forum (UN-IGF).
- The theme of IIGF 2021 is **'Empower India through Power of Internet'.**
- The event will witness enlightening discussions on the road to Digitization in India.
- India Internet Governance Forum(IIGF) has been constituted in conformance to IGF-Paragraph 72 of the **Tunis Agenda of the UN-based Internet Governance forum (IGF).**

- The Internet Governance Forum (IGF) is a multi-stakeholder platform bringing representatives together from various groups to discuss public policy issues related to the Internet.
- Through an open and inclusive process, IIGF brings together all stakeholders in the Global Internet governance ecosystem, including government, industry, civil society, academia - as equal participants of the larger Internet Governance discourse.

Bipolar Air Disinfectant and Purifier

Context
- An air disinfection and purifying device called "Bipolar Air Disinfectant and Purifier", was launched.

Details
- The new Bipolar Air Disinfectant & Purifier device can inactivate pathogens like SARS-COV-2 (COVID19), Norovirus, Influenza, Legionella virus, Rhinovirus, Varicella zoster virus, TB bacteria, Staphylococcus bacteria, E Coli bacteria, Pseudomonas bacteria, Bacillus cereus bacteria, fungi and molds.
- With this device, the company has introduced **the first Make in India Bipolar Ionization technology in the country.**

How Does Bipolar Ionization Work?
- **Bipolar ionization works by introducing positive and negative ions into the air.**
- The ionization causes **production of clusters of hydroxyl (OH) radicals, which are formed on the surface of microbes**, **removing hydrogen from the microbes' cell walls,** thereby inactivating potentially infectious particles.

Radio Over Internet Protocol (ROIP)

Context
- In view of a much needed solution for providing effective long range Marine communication, the Radio over Internet Protocol (ROIP) System at Syama Prasad Mookerjee Port, Kolkata (SMP, Kolkata), was inaugurated.

About
- ROIP system is being introduced as a marine communication mode, for the first time in any Major Indian Port.
- Radio over Internet Protocol, or RoIP, is similar to Voice over IP (VoIP), but augments two-way radio communications rather than telephone calls.

Autosomal DNA

Context
- A technique based on 'autosomal DNA' has been used for the first time to identify the great-grandson and closest living relative of Sitting Bull, a prominent 19th century Native American leader.

About
- Autosomal DNA is a term used in genetic genealogy to describe DNA which is inherited from the autosomal chromosomes.
- An autosome is any of the numbered chromosomes, as opposed to the sex chromosomes.
- Humans have 22 pairs of autosomes and one pair of sex chromosomes (the X chromosome and the Y chromosome).
- Autosomes are numbered roughly in relation to their sizes.

I-Drone

Context
- Union Health Minister launched the ICMR's drone response and outreach in the north-east (i-Drone).
- The delivery model is aimed at ensuring that life-saving vaccines reach everyone.

About
- This is for the first time that a 'Make in India' drone has been used in South Asia to transport COVID vaccine over an aerial distance of 15 km in 12-15 minutes from the Bishnupur district hospital to **Loktak lake, Karang island in Manipur** for administration at the primary health centre.

Significance
- India is home to geographical diversities and drones can be used to deliver essentials to the last mile.
- This would facilitate vaccine delivery to tough and hard-to-reach terrains.

Present permits
- Currently, the drone-based delivery project has been granted permission for implementation **in Manipur and Nagaland, as well as the Andaman and Nicobar Islands.**

- The Ministry of Civil Aviation, the Directorate General of Civil Aviation and other regulatory authorities have granted permission to fly drones beyond the visual line of sight.
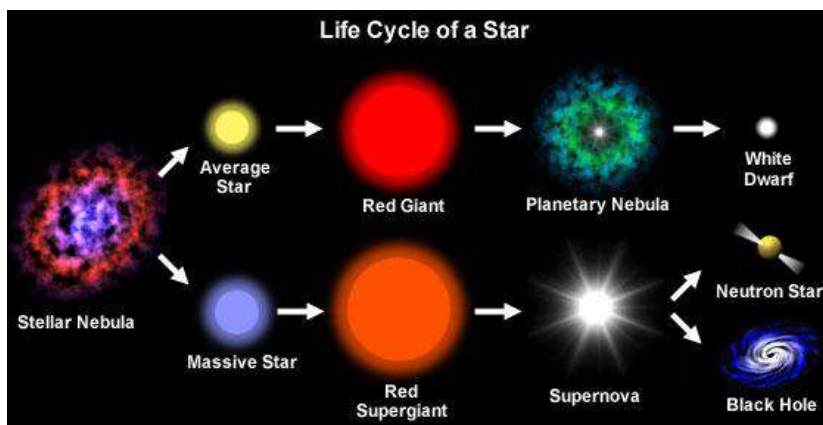
White Dwarf

Context

- An international team has reported a unique phenomenon in a white dwarf about 1,400 light years from Earth.

About

- A white dwarf is **what stars like the Sun become after they have exhausted their nuclear fuel.**
- Near the end of its nuclear burning stage, this type of star expels most of its outer material, creating a planetary nebula.
- Only the hot core of the star remains.
- This <u>core becomes a very hot white dwarf,</u> with a temperature exceeding 100,000 Kelvin.
- The white dwarf then cools down over the next billion years or so.
- Recently, soft X-ray and extreme ultraviolet observations have become a powerful tool in the study the composition and structure of the thin atmosphere of these stars.
- A typical white dwarf is half as massive as the Sun, yet only slightly bigger than Earth.
- White dwarfs are **one of the densest collections of matter**, surpassed only by neutron stars.

Composition

- Usually, white dwarfs are composed of carbon and oxygen (CO white dwarf).
- Neon Magnesium Helium white dwarf may also form.

Xenotransplantation

Context

- Surgeons in the United States have successfully transplanted a pig kidney into a brain-dead human,

About

- Xenotrans plantation is the transplantation of living cells, tissues or organs from one species to another.
- Such cells, tissues or organs are called xenografts or xenotransplants.
- It is contrasted with allotransplantation (from other individual of same species), syngeneic transplantation or isotransplantation (grafts transplanted between two genetically identical individuals of the same species) and autotransplantation (from one part of the body to another in the same person)

Blue Straggler

Context

- Indian scientists conducted first ever comprehensive analysis of Blue stragglers.

About

- Blue stragglers are a class of star observed in old, dense stellar systems such as globular clusters.
- They stand out because old stellar populations are expected to be devoid of blue (high-mass) stars which possess very short lifespans.
- The blue stragglers in an old stellar population must therefore have formed long after the system as a whole.
- They are bigger and bluer than the rest of the stars.

Crisp M Tool

Context

- Union Minister of Rural Development &Panchayati Raj, Giriraj Singh, launched the "Climate Resilience Information System and Planning (CRISP-M) tool" through a virtual event.

About

- A New CRISP-M tool has been launched in order to integrate the climate information in the "Geographic Information System (GIS) based watershed planning" under the MGNREGA.

- This tool will help in embedding climate information in GIS based planning as well as implementation of Mahatma Gandhi NREGA (MGNREGA).
- This tool was developed with the help of British Government and all the stakeholders. They supported the Rural Development Ministry in developing the tool.

Significance of the tool

- This tool will open up new possibilities for rural communities in dealing with the climate change issues.

Which states can use this tool?

- This tool will be used in seven states namely, Bihar, Uttar Pradesh, Jharkhand, Chhattisgarh, Madhya Pradesh, Odisha and Rajasthan, for developing climate resilience.

SECURITY & DEFENSE

Mitra Shakti Exercise

Context

- India and Sri Lanka carried out a 12-day mega military exercise with a focus on enhancing counter-terror cooperation.

Key highlights

- The **eighth edition of the 'Mitra Shakti' exercise** conducted at Combat Training School in Sri Lanka's Ampara.
- **Aim of the exercise**: To promote close relations between armies of both countries and **enhance inter-operability and sharing best practices in counter-insurgency and counter-terrorism operations.**
- The exercise involved tactical level operations at sub-unit level in an international counter-insurgency and counter-terrorism environment.
- The exercise will go a long way in further **strengthening the relationship between both the South Asian nations and will act as a catalyst in bringing synergy and cooperation at the grassroot level** between both armies.
- The **seventh edition of the Mitra Shakti** exercise was conducted at Foreign Training Node (FTN) in **Pune in 2019.**

Fifth Edition of 'JIMEX'

Context

- The fifth edition of India – Japan Maritime Bilateral Exercise, JIMEX, between the Indian Navy (IN) and the Japan Maritime Self-Defence Force (JMSDF) conducted.

About JIMEX

- JIMEX series of exercises commenced in January 2012 with special **focus on maritime security cooperation**.
- The last edition of JIMEX was conducted in September 2020.

Aim

- JIMEX-21 aims **to develop common understanding of operational procedures and enhance inter-operability** through conduct of a multitude of advanced exercises, across the entire spectrum of maritime operations.
- Multi-faceted tactical exercises involve **weapon firings, cross-deck helicopter operations and complex surface, anti-submarine and air warfare drills**.
- Naval cooperation between India and Japan has increased in scope and complexity over years.
- JIMEX-21 will further **enhance the cooperation and mutual confidence between the two navies and fortify the long-standing bond of friendship between the two countries.**

DRDO Dare To Dream 2.0

Context

- Raksha Mantri gives away DRDO Dare to Dream 2.0 & Young Scientists awards

Key Highlights

- Three indigenously-developed technologies handed over to the Armed Forces
- DRDO **Directed Research Policy & Records Management Policy** launched
- Greater linkages between DRDO and academia emphasized
- 'Dare to Dream 3.0' launched to promote innovators & startups and provide a platform for the young ignited minds in the country.

Dare to Dream

- It is **DRDO's pan-India contest to promote Indian academicians, individuals and startups to develop emerging defence and aerospace technologies/systems**.

- DRDO provides **technical and financial support** to the winners for realization of their ideas under the **Technology Development Fund (TDF) scheme.**
- The 'Dare to Dream' challenge, represents the vision and mission of the Government as also the mandate of DRDO.

Reform steps taken to increase the participation of private industry in the defence sector are

- bringing **new categories of acquisition in Defence Acquisition Procedure (DAP) 2020**;
- provision of a specific budget for defence modernization;
- notifying two Positive Indigenization lists;
- increasing FDI in defence;
- according top priority to capital procurement and Buy {Indian - Indigenously Designed Developed and Manufactured (IDDM)} to promote indigenous design & development of defence equipment;
- creating opportunities to build a Mega Defence Programme including fighter aircraft, helicopters, tanks and submarines through Strategic Partnership Model;
- Opening avenues for free Transfer of Technology (ToT) through DRDO and initiatives like Innovations for Defence Excellence (iDEX) and Technology Development Fund.

Products/systems indigenously developed by DRDO handed over to the Armed Forces are

- **ARINC818 Video Processing and Switching Module**: It is a **state-of-the-art module with high bandwidth, low latency, channel bonding, easy networking a**nd will cater to 5th generation aircraft development programmes.
- **Sonar Performance Modelling System**: It is useful for **Indian Naval ships, submarines and under water surveillance stations etc.**
- **Bund Blasting Device Mk-II**: It is used to **reduce the height of Ditch-cum-Bund obstacles to enhance the mobility of mechanized infantry during wartime.**

Guidelines for Cyber Security in Power Sector

Context

- The central government released the **guidelines for cyber security in the power sector with the aim to create a secure power cyber ecosystem. "Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations, 2019**
- It has framed Guideline on Cyber Security in Power Sector to be adhered by all Power Sector utilities to create cyber-secure eco-system.
- This is the **first time that a comprehensive guideline has been formulated on cyber security in the power sector.**
- The norms have been prepared after intensive deliberations with stakeholders and inputs from expert agencies in the field of cyber security, such as CERT-In, NCIIPC, NSCS and IIT-Kanpur, and subsequent deliberations in the power ministry.
- It **lays down a cyber assurance framework**, **strengthens the regulatory framework, puts in place mechanisms for security threat early warning, vulnerability management and response to security threats, and secures remote operations and services**.
- The norms are **applicable to all responsible entities** as well as system integrators, equipment manufacturers, suppliers/ vendors, service providers, and IT hardware and software OEMs (original equipment manufacturers) engaged in the Indian power supply system.
- The guidelines **mandate ICT-based procurement** from identified 'trusted sources' and 'trusted products' or else the product has to be tested for malware/ hardware trojan before deployment for use in the power supply system network.
- It will **promote research and development in cyber security** and open up the market for setting up cyber testing infra in public as well as private sectors in the country.

Exercise Ajeya Warrior

Context

- The 6th Edition of India - UK Joint Company Level Military Training EXERCISE AJEYA WARRIOR has commenced at Chaubatia, Uttarakhand and will culminate on 20 Oct 2021.

About EXERCISE AJEYA WARRIOR

- The exercise is **part of an initiative to develop inter-operability and sharing expertise with friendly foreign nations.**
- During this exercise, an Infantry Company from Indian Army and an equivalent strength from UK Army would be sharing their experiences gained during the conduct of various military operations in their respective countries and during overseas engagements.

- It will help in **improving bilateral relations and also will be a major step towards further strengthening the traditional bond of friendship between the two Nations.**

Ex Yudh Abhyas 2021

Context
- As part of the ongoing Indo-US Defence Cooperation, the Joint Military Training Exercise "Ex Yudh Abhyas 2021" conducted at Alaska (USA).

About Exercise Yudh Abhyas
- It is **the largest running joint military training** and defence cooperation endeavor **between India and USA**.
- This was the 17th Edition of the joint exercise which is hosted alternately between both countries.
- This exercise is another step in the growing military cooperation between the two countries.
- The exercise **aims at enhancing understanding, cooperation and inter-operability b**etween two Armies.
- The joint exercise focus on Combined Arms Manoeuvres in cold climatic conditions and is primarily aimed at sharing tactical level drills and learning best practices from each other.

China's Hypersonic Glide Vehicle Test

Context
- A report in the London-based Financial Times, says China in August tested a nuclear-capable hypersonic glide vehicle that circled the globe before speeding towards its target.
- **Hypersonic speeds are 5 or more times the speed of sound.**

Significance
- The weapon **could, in theory, fly over the South Pole**.
- It would pose a big **challenge for the US military** because its missile defence systems are focused on the northern polar route.
- The **US, Russia and China** are all developing hypersonic weapons, including glide vehicles that are launched into space on a rocket but orbit the earth under their own momentum.
- **India's DRDO tested a hypersonic vehicle** last year.
- Most of the hypersonic vehicles primarily use the scramjet technology.
- **Scramjets are a category of engines designed to handle airflows of speeds in multiples of the speed of sound.**

Implications for India
- This test by China certainly needs to be watched closely by the world, especially India considering relations with China in the recent past.
- It also highlight the **threat for our space assets along with the surface assets**.
- The offence system operating at these speeds would mean requirement to develop defence systems at these speeds.

India's Preparedness
- Hypersonic technology has been **developed and tested by both DRDO and ISRO**.
- DRDO successfully flight-tested the **Hypersonic Technology Demonstrator Vehicle (HSTDV)**, with a capability to travel at 6 times the speed of sound.
- A **solid rocket motor of Agni missile** took it to an altitude of 30 km where the cruise vehicle separated as planned.
- The hypersonic combustion sustained and the cruise vehicle continued on its desired flight path at a velocity of six times the speed of sound for more than 20 seconds.

Heron Unmanned Aerial Vehicle (UAV)

Why in news?
- Army Aviation has recently got control of the **Heron-I Unmanned Aerial Vehicles (UAV)** in the Eastern sector, which were earlier with the Artillery, bringing all aviation assets under one roof and augmenting its ability to keep an eye on Chinese activities across the border.

Army Aviation Brigade
- The Army Aviation Brigade was raised to enable better command and control of aviation resources.
- The Brigade operates the **Cheetah and Advanced Light Helicopter (ALH) Dhruv utility helicopters, Rudra weaponsied ALH and Heron-I UAVs.**
- With the UAVs being under the Army Aviation, the receipt capability has become seamless and more responsive.

- All aerial assets are under one umbrella, which allows optimized employment of RPAs during operations in conjunction with other aviation assets.
- It also **helps in up gradation of flight safety management** and practices and also boosts training infrastructure for RPA aircrew.
- It also ensures better maintenance and serviceability by optimizing the supply chain and spares management.
- It **smoothens out the Command and Control process especially during operations.**
- The Army has **90 ALH and 75 Rudra helicopters** in service which are **indigenously designed and developed by the Hindustan Aeronautics Limited (HAL).**

Heron-I UAVs

- The Israeli Heron-I UAVs are in the process of being upgraded.
- Army has recently leased four Heron-TP Medium Altitude Long Endurance (MALE) Unmanned Aerial Vehicles (UAV) from Israel Aircraft Industries, which are much more capable than the Heron-1s.
- These are expected to be deployed in Eastern Ladakh in the backdrop of the standoff which began last year and is still continuing.

Issue of concern

- Ageing fleet of Cheetah and Chetak helicopters and their delayed replacement.
- About 75% of the Army's fleet of Cheetah and Chetak helicopters, which is its mainstay, is over 30 years old and some of them are about 50 years old.
- The technical life of these helicopters will wind down from 2023, which will further exacerbate the deficiencies.
- The Ka-226T utility helicopter deal with Russia along with the indigenous Light Utility Helicopter (LUH) meant to replace them has been stalled for several years over the percentage of indigenization.

Exercise Cambrian Patrol

Why in news?

- Indian army team wins gold medal in Exercise Cambrian Patrol organized at UK.

About Ex Cambrian Patrol

- It is organized by the UK Army.
- It is considered the **ultimate test of human endurance, team spirit and is sometimes referred as the Olympics of Military Patrolling among militaries in the world.**
- The Indian Army team participated in the event and competed against a total of 96 teams which included 17 international teams representing Special Forces and prestigious Regiments from around the world.
- During the exercise, teams were assessed for their performance under harsh terrain and inclement cold weather conditions which presented various challenges in addition to the complex real world situations painted to them so as to assess their reactions in combat settings.

Konkan Shakti Exercise

Context

- India-U.K. to launch phase of the high-level Konkan Shakti exercise.

More about news

- It is a bilateral exercise between two **India-U.K. Navy.**
- The exercise is part of the U.K.'s consistent practice of maritime exercises it has carried out with several countries like the U.S. and Japan in recent years.
- It will help to **gear up the India-U.K. ties**.
- It is a "**non-provocative" exercise** in the Indo-Pacific region and is being interpreted as the biggest British naval deployment since the end of the Cold War.

Abhyas

Context

- High-Speed Expendable Aerial Target ABHYAS successfully flight-tested by DRDO.

More about news

- ABHYAS - the High-speed Expendable Aerial Target (HEAT) is **designed & developed by DRDO's** Aeronautical Development Establishment (ADE), Bengaluru.
- The current flight test is carried out as a part of developmental flight trials.
- The vehicle can be used as an **aerial target for evaluation of various missile systems**.
- The performance of the target aircraft was monitored through telemetry and various tracking sensors including Radars and Electro Optical Tracking System (EOTS).
- It is **powered by a gas turbine engine** to sustain a long endurance flight at subsonic speed.
- The target aircraft is **equipped with MEMS based Inertial NavigationSystem (INS) for navigation** along with the Flight Control Computer (FCC) for guidance and control.
- The vehicle is programmed for fully autonomous flight. The check-out of air vehicle is done using laptop-based Ground Control Station (GCS).

Operation Red Rose

Context

- Punjab police launched Operation Red Rose to take strict action against all kinds of liquor smuggling, bootlegging and illicit distillation of liquor in Ludhiana.
- For this purpose, a 30-member anti-smuggling cell has been constituted.
- A close co-ordination is also being kept with the excise department to stop smuggling of liquor.

Pinaka and Smerch

Context

- India's military posture in the Tawang sector of Arunachal Pradesh has added an offensive punch with the Army deploying **Pinaka and Smerch long range**, multi-barrel rocket launch systems as well as **BrahMos** supersonic cruise missiles in the region.

Smerch

- It is **procured from Russia**.
- It is the **longest range conventional rocket system** in the Army's inventory with a **maximum range of 90 km.**
- These give Army the ability to hit targets deep inside China in case of any misadventure.

Pinaka

- It is an indigenously designed and developed by the Defence Research and Development Organisation.
- It has a range of 38 km.
- A battery of six launchers of Pinaka can fire a salvo of 72 rockets in 44 seconds, thereby neutralising an area of 1000mX800m.
- The upgraded version of the Pinaka ammunition systems were already in production line and could fire up to a range of 75 km with superior precision.
- Both **Pinaka and Smerch have 12 rockets in each launcher**.

MK 54 torpedo

Context

- Defence ministry pact with **US to procure MK 54 torpedo** and expendables such as chaff and flares for the Indian Navy's anti-submarine warfare aircraft P-8I at a cost of Rs 423 crore.
- The Indian Navy has a total of **11 P-8I aircraft**, which are **manufactured by US aerospace company Boeing**, in its fleets.

P-8I aircraft

- Known for its **anti-submarine warfare capabilities** and for **its advance maritime reconnaissance capabilities.**

Tushil

Context

- Indian Navy's stealth frigate Tushil launched in Russia.

- Of four frigates contracted by India, two are being built by Russia and two in India.
- The first of two additional Krivak or Talwar-class stealth frigates, Tushil, being built in Russia for the Indian Navy, was formally launched into the waters.

About stealth frigate Tushil

- It is part of **four follow-on frigates contracted by India from Russia**, of which two are being built by Russia and two are under construction in India through technology transfer.
- The launch of a ship from dry dock into the waters is significant, as it marks the completion of the basic construction.
- The advanced construction and equipping of the ship will be done when the ship is afloat.
- The first of the two ships is expected to be delivered in India in mid-2023.
- The construction of these ships is based on the Indian Navy's specific requirements to meet the entire spectrum of naval warfare in all three dimensions of air, surface and sub-surface.
- They will be equipped with major Indian-supplied equipment such as <u>Surface to Surface Missiles (SAM), sonar system, surface surveillance radar, communication suite and Anti-Submarine Warfare (ASW) system, along with Russian SAMs and gun mounts.</u>
- As part of the **technology transfer obligations**, Indian technicians will visit the Yantar shipyard during the ongoing construction of the two frigates to familiarize themselves with the specificity of the equipment and construction.

Indian Coast Guard Ship 'Sarthak'

Context

- In a significant boost to the maritime safety and security of the nation, the indigenously built Indian Coast Guard Ship 'Sarthak' was commissioned and dedicated to the nation.

About ICGS Sarthak

- It will be based at Porbandar in Gujarat and operate on India's Western Seaboard under the Operational and Administrative Control of the Commander, Coast Guard Region (Northwest).
- ICGS Sarthak is **4th in the series of five OPVs** being built by **Goa Shipyard Limited** for the ICG.
- These OPVs are **multi-mission platforms capable** of undertaking concurrent operations.
- The 105-meter-long ship displacing 2,450 tons is propelled by two 9,100 kilowatt diesel engines designed to attain a maximum speed of 26 knots.
- The ship is fitted with state-of-the-art equipment, machinery, sensors and weapons which enables it to function as a **command platform and undertake mandated Coast Guard charter of duties including search & rescue, combating maritime crimes and preserving & protecting the marine environment.**
- Indian Coast Guard is a pioneer in inducting indigenous platforms and ICGS Sarthak is a glowing example of 'Atmanirbhar Bharat'.

Agni-5 missile

Context

- Agni-5 missile test fired successfully.
- The successful test of the Agni-5 missile is in line with India's stated policy to have **credible minimum deterrence** that underpins the commitment to no first use.

About Agni-5

- The missile, which is being inducted into the **Strategic Forces Command** (SFC).

- It will put **India's credible minimum deterrence** on a firm footing as no missile in the Indian arsenal has the range to strike targets deep inside China.
- It uses a **three-stage solid fuelled engine**, is capable of striking targets at ranges up to 5,000km with a very high degree of accuracy.
- India completed its nuclear trial in 2018 when the indigenous nuclear-powered ballistic missile submarine, INS Arihant, successfully completed its first deterrence patrol.
- India has the capability to carry out nuclear strikes with fighter planes, land-launched missiles and from the sea.
- The **Agni series of ballistic missiles and warplanes such as Rafales, Sukhoi-30s and Mirage-2000s can deliver nuclear warheads.**
- India is also developing a new class of ultra-modern weapons that can travel six times faster than the speed of sound (Mach 6) and penetrate any missile defence.

MATSYA 6000

Context
- India's First and Unique Manned Ocean Mission Samudrayan launched at Chennai.

More about news
- India joins the elite club of nations such as **USA, Russia, Japan, France and China** to have such underwater vehicles for carrying out subsea activities.

Mission Samudrayan
- This niche technology shall facilitate Ministry of Earth Sciences (MoES) in carrying out deep ocean exploration of the non-living resources such as polymetallic manganese nodules, gas hydrates, hydro-thermal sulphides and cobalt crusts, located at a depth between 1000 and 5500 meters.
- The preliminary design of the **manned submersible MATSYA 6000** is completed and realization of vehicle is started with various organization including ISRO, IITM and DRDO roped-in to support the development.
- Sea trials of 500 meter rated shallow water version of the manned submersible are expected to take place in the last quarter of 2022.
- MATSYA 6000, the deep water manned submersible will be ready for trials by the second quarter of 2024.
- Advancing technologies in **metallurgy, energy storage, underwater navigation and manufacturing facilities provides opportunity for developing more efficient**, reliable and safe manned submersible.
- The underwater vehicles are essential for carrying out subsea activities such as **high resolution bathymetry, biodiversity assessment, geo-scientific observation, search activities, salvage operation and engineering support**.

- Unmanned underwater vehicles have improved maneuvering and excellent vision systems resembling direct observation, manned submersible provides a feel of direct physical presence for researchers and has better intervention capability.

Matsya 6000

Designed to dive to a depth of 6,000 m, it will carry 3 people – 1 pilot, 2 scientists

Similar to Gaganyaan crew module, it will have 5 cubic metres of space inside

Duration of a dive will be 12 hours, but it will be able to stay underwater for 16 hours

Work is currently halfway; estimated to be ready for launch by 2024

Only five other countries have launched manned submersibles so far

- With the advancing subsea technologies, the recent **Fendouzhe manned submersible** developed by China in 2020 has touched ~11000m water depths.
- Based on the experience gained over two decades in the development of unmanned robotic vehicles and systems for 6000 m operational capability, MoES-NIOT is **indigenously developing a manned submersible with a depth capability of 6000 meters under the aegis of Deep Ocean Mission**.
- The manned submersible is designed to **carry three persons in 2.1 meter diameter Titanium Alloy Personnel Sphere** with an operational endurance of 12h and systems to support emergency endurance up to 96h.
- Some of the critical subsystems of the manned submersibles are development of
- Ti Alloy Personnel Sphere
- Human support and safety system in enclosed space
- low density buoyancy modules
- Ballast and Trim System.
- Pressure compensated batteries and propulsion system
- control and communication systems and
- Launching and Recovery System.
- System design, concept of operation, subcomponents functionality and integrity, emergency rescue, failure mode analysis are reviewed and certified as per the rules of International Association of Classification and Certification Society for man-rated usage of manned submersible at a depth of 6000 meters.

ENVIRONMENT & ECOLOGY

Wetlands of India' Portal

Context
- Minister of Environment, Forest and Climate Change launched 'Wetlands of India' Portal, a single point access to all information relating to wetlands.

About portal
- It is a **dynamic system for processing information and making it available to the stakeholders** in an efficient and accessible manner.
- It hosts **capacity building material, data repository, videos and information** for students.
- A dashboard for each State and UT has been developed to access the portal and populate it with information of wetlands in their administration.
- It enables **citizen engagement**.
- It has been developed under a Technical Cooperation project "Wetlands Management for Biodiversity and Climate Protection" (Wetlands Project) of Ministry of Environment, Forest and Climate Change (MoEFCC) in partnership with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

What are Wetlands?
- Wetlands are areas where **water covers the soil, or is present either at or near the surface of the soil all year** or for varying periods of time during the year, including during the growing season.
- **Water saturation (hydrology)** largely determines how the soil develops and the types of plant and animal communities living in and on the soil.
- Wetlands may support both **aquatic and terrestrial species**.

Categories of wetlands
- Two general categories of wetlands are recognized: **coastal or tidal wetlands and inland or non-tidal wetlands**.
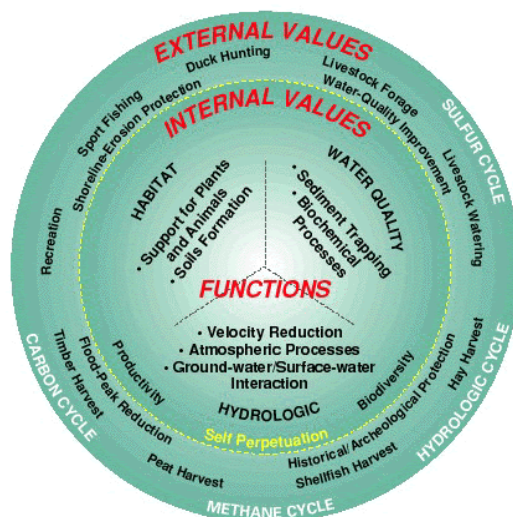
Functions of wetland:

Figure 51. Wetland functions and internal and external valu

Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)

Context

- India has extended support for protecting the Antarctic environment and for co-sponsoring the proposal of the European Union for designating **East Antarctica and the Weddell Sea as Marine Protected Areas (MPAs)** at a high-level ministerial meeting.

About MPA

- An MPA is a **marine protected area** that provides protection for all or part of its natural resources.
- Certain activities within an MPA are limited or prohibited to meet specific conservation, habitat protection, ecosystem monitoring, or fisheries management objectives.

About Commission for the Conservation of Antarctic Marine Living Resources

- It is an **international treaty** to manage Antarctic fisheries with the goal of **preserving species diversity and stability of the entire Antarctic marine ecosystem.**
- The Convention for the Conservation of Antarctic Marine Living Resources was established in 1982.
- It was **established in response to concerns that increasing krill fishing activities could have a deleterious impact on the Southern Ocean ecosystem.**
- It is an international **treaty between 25 nations** that seeks to manage Antarctic fisheries with the goal of preserving species diversity and stability of the entire Antarctic marine ecosystem.
- Although the aim of the Convention is to **conserve marine life of the Southern Ocean, it does not prohibit reasonable harvesting.**
- **India has been a permanent member of the CCAMLR since 1986.**
- **Work pertaining to the CCAMLR is coordinated in India by the Ministry of Earth Sciences through its attached office, the Centre for Marine Living Resources and Ecology (CMLRE) in Kochi, Kerala.**
- India is part of the **Antarctic Treaty System.**

Guduchi (Tinospora cordifolia)

Context

- Ministry of Ayush has recently noticed safety concerns on use of Guduchi (Tinospora cordifolia) that were published in social media and in some scientific journals.

More about news

- This advisory confirm that Guduchi (Tinospora cordifolia) is safe to use but **some similar looking plants like Tinospora crispa may be harmful.**

About Guduchi

- Guduchi is a **popularly known herb**, familiar as **Giloy** and is being used in therapeutics since long in AYUSH systems.
- There are good number of studies published in peer reviewed indexed

Giloy Benifits:
- Natural Immunity Booster
- Rich in anti-oxidants
- Cures indigestion
- Aleviates Anxiety & Stress
- Boosts Vision

Journals to substantiate safety and efficacy of Guduchi (Tinospora cordifolia).

- Its **hepato-protective properties** are also well established.
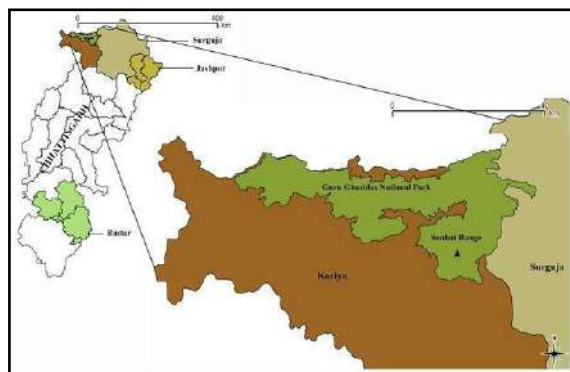- Guduchi is known for its **immense therapeutic applications**.

Guru Ghasidas Tiger Reserve

Context

- India's newest Tiger Reserve in Chhattisgarh will connects Jharkhand and Madhya Pradesh and will **provides a corridor for tigers to move between the Bandhavgarh and Palamau Tiger Reserves.**

More about news

- This will be the **fourth Tiger Reserve in Chhattisgarh**, after the **Udanti-Sitanadi, Achanakmar, and Indravati Reserves.**
- National Tiger Conservation Authority (NTCA) approved the Chhattisgarh government's proposal to declare the combined areas of the Guru Ghasidas National Park and **Tamor Pingla Wildlife Sanctuary** as a Tiger Reserve.
- The new Reserve is located in the northern part of the state, bordering Madhya Pradesh and Jharkhand.

Tamor Pingla Wildlife Sanctuary

- It was **identified as part of the Sarguja Jashpur Elephant Reserve in 2011**.
- The Guru Ghasidas National Park used to be **part of the Sanjay National Park in undivided Madhya Pradesh**. Both were identified as reserve forests, and had been in line to be notified as Tiger Reserve since 2011.

Significance, importance

- Guru Ghasidas National Park was the **last known habitat of the Asiatic cheetah in the country**.
- Originally part of the Sanjay Dubri National Park, Guru Ghasidas Park was **created as a separate entity in Chhattisgarh's Sarguja region after the formation of the state in 2001.**

Other protected areas of Chhattisgarh

Kunming biodiversity fund

Context

- China pledged $233 million into a new fund to protect biodiversity in developing countries during COP15, the UN conservation summit.
- This pledge came as delegates from about 195 countries gathered in Kunming for the first of a two-part summit on safeguarding plants, animals and ecosystems.
- **Kunming Declaration** was adopted that **demonstrates global commitment for ambitious post-2020 global biodiversity framework.**
- The Declaration addresses key elements needed for a successful post-2020 framework:

- the mainstreaming of biodiversity across all decision-making;
- phasing out and redirection of harmful subsidies;
- strengthen the rule of law;
- recognizing the full and effective participation of indigenous peoples and local communities and
- ensuring an effective mechanism to monitor and review progress; among others.
  The summit aims **to establish a new accord setting out targets for 2030 and 2050.**
- China's pledge is far below the $4 billion committed by Britain for global conservation projects over the next five years or France's commitment to spend 30 percent of its climate finance on biodiversity.
- China will take the lead in establishing the Kunming biodiversity fund with a capital contribution of 1.5 billion yuan ($233 million) to support the cause of biodiversity conservation in developing countries
- A key proposal being debated at the conference is the **"30 by 30" agenda** that would **afford 30 percent of the Earth's land and oceans protected status by 2030.**

UN Convention on Biological Diversity

- The UN Convention on Biological Diversity has been ratified by **195 countries and the European Union -- although not the United States, with the parties meeting every two years**.
- As per Un report, Ecosystem collapse could cost almost $3 trillion annually by 2030 -- its greatest impact will be on some of the poorest and highly indebted countries."

The Earthshot Prize

Context

- Dubbed as the **"Eco Oscars"**, The Earthshot Prize is an award set up by Prince William and the Royal Foundation, the charity founded by the Duke and Duchess of Cambridge, and historian David Attenborough to honor five finalists between 2021 and 2030 for **developing solutions to fight the climate crisis.**

India's special

- The inaugural edition remains special for India as **Vidyut Mohan's technology that recycles agricultural waste to create fuel was named among the winners of the coveted prize.**

About Earthshot Prize

- Established in 2020, 2021 was the first year when awards were handed out to finalists for their **contributions towards the five UN Sustainable Development Goals — restoration and protection of nature, air cleanliness, ocean revival, waste-free living and climate action.**
- Earthshot Prize hopes to **encourage and support the development of solutions for Earth's environmental problems.**
- Five individuals or organizations that have come up with impactful solutions to problems plaguing the planet will be awarded **one million euros.**
- Each year five winners will be selected, one for each of the UN SDG goal categories, with a total of 50 million euros being awarded by 2030.
- The winners will be chosen from 15 finalists, three for each category, by the Earthshot Prize Council.

India's Bio-Economic Hub

Context

- Union Minister said that Northeast will be developed as India's Bio-Economic Hub.
- The **Eastern Himalayan Region is one of the mega-biodiversity rich zones** and is among the **34 biodiversity Hotspots of the world.**
- India's Bio-Economy is on its way to achieve 150-billion-dollar target from the current 70 billion-dollar by 2025 and will contribute effectively to vision of a 5 trillion-dollar economy by 2024-25.

Need

- North Eastern region is a genetic treasure house of plant, animal and microbial resources.
- To **put invaluable genetic resources to use** for the economic growth of the region through biotechnological interventions.
- It will help in recognizing **India as a Global Bio-manufacturing Hub by** 2025.

UNEP production Gap report

Why in news?

- UNEP production gap report released.

Key highlights of the report

- The climate crisis has become clearer than ever, but it has not been able to compel major emitters to improve action on the ground so far.
- Governments across the world are still planning to produce more than double the fossil fuels than what the world requires to limit the global temperature rise to 1.5 degrees Celsius.
- The **production gap to achieve the climate goal is the widest for coal**: Production plans and projections by governments would lead to **around 240 per cent more coal, 57 per cent more oil, and 71 per cent more gas in 2030 than global levels consistent with limiting warming to 1.5°C.**
- The modelling analysis has considered **carbon dioxides removal (CDR) technologies** to be deployed widely and methane emissions and leakages to be arrested.
- These assumptions are yet to be proven workable in practice and any deviation from the assumptions will lead to further widening of the gap.
- Global fossil fuel production under four pathways from 2019 to 2040, denominated in extraction-based CO2 emissions in units of billion tonnes of CO2 per year (GtCO2/yr).
- The most worrying factor is that almost all major coal, oil and gas producers are planning to increase their production till at least 2030 or beyond.
- The Group of 20 countries has channelized $300 billion to fossil fuels since the beginning of the pandemic, and the sector is still enjoying significant fiscal incentives.
- The report has underlined **massive gaps between our pledges and actions, which need to be rectified with a real policy plan and finance.**

Ambergris

Context

- Forest Department officials seized 8.013 kg of ambergris in Tiruvarur district.

About Ambergris

- It is **used for making perfumes**.
- It is produced in the **stomach of spermwhales** when indigestible parts move into the intestines and bind together.
- They slowly become a solid mass, growing over many years.
- When the animal vomits the mass, it floats a foot below the surface of the sea. Only those with knowledge of it can collect it.

In the modern-day perfume industry, ambergris is used as a stabiliser in fine perfumes. Today, one kg of ambergris could fetch the fancy price of Rs 1 crore.

World Meteorological Organization Report

Context

- A Greenhouse Gas Bulletin report from the World Meteorological Organization (WMO) said the increase in CO2 from 2019 to 2020 was slightly lower than that observed from 2018 to 2019 but higher than the average annual growth rate over the last decade.

CO2 emissions

- This is despite the approximately 5.6% drop in fossil fuel CO2 emissions in 2020 due to restrictions related to the pandemic.

Methane emissions

- The increase from 2019 to 2020 was **higher than** that observed from 2018 to 2019 and also higher than the average annual growth rate over the last decade.

Nitrous oxides

- The increase was higher and also than the average annual growth rate over the past 10 years.

Annual Greenhouse Gas Index

- The National Oceanic and Atmospheric Administration (NOAA) Annual Greenhouse Gas Index (AGGI) shows that from 1990 to 2020, radiative forcing by long-lived greenhouse gases (LLGHGs) increased by 47%, with CO2 accounting for about 80% of this increase.
- Concentration of carbon dioxide (CO2), the most significant greenhouse gas, reached 413.2 parts per million in 2020 and is 149% of the pre-industrial level. Methane (CH4) is 262% and nitrous oxide (N2O) is 123% of the levels in 1,750 when human activities started disrupting earth's natural equilibrium.

- WMO report flagged concern that the **ability of land ecosystems and oceans to act as 'sinks' may become less effective in future,** thus reducing their ability to absorb CO2 and act as a buffer against larger temperature increase.
- The Bulletin shows that from 1990 to 2020, **radiative forcing — the warming effect on our climate —** by long-lived greenhouse gases increased by 47%, with CO2 accounting for about 80% of this increase.
- The numbers are based on monitoring by **WMO's Global Atmosphere Watch network.**

Bush Frog or Raorchestes Ponmudi

Context
- Cardamom farmers welcome bush frog, or Raorchestes ponmudi frog species.

About Raorchestes ponmudi frog
- It is **endemic to the Western Ghats**.
- The bush frog, or Raorchestes ponmudi, **eats up moths** known **to destroy cardamom's pseudo-stem, a major menace faced by farmers.**
- This frog species **eats up the shoot borer Conogethes punctiferalis** that enters through immature panicles and attacks the shoots and stems, thus destroying cardamom plants, often in a large-scale.
- Unlike other frog species, the **bush frog's life cycle is entirely different, and water sources are not primarily needed for the growth of its eggs.**

Killer Whale

Context
- A Killer whale sighted again off Lakshadweep.
- Such sightings are rare, as **very little is known about killer** whale occurrence, **seasonal movements, habitat and prey preferences, and behaviour in the northern Indian Ocean.**
- Such records highlight the rich whale and dolphin biodiversity in Lakshadweep waters.

About killer whales (orca)
- Orcas belong to a **highly evolved group of toothed whales** under the suborder Cetacean and dolphin family and are **widely distributed in temperate and tropical waters**.
- They have **long life spans and are highly social, feeding cooperatively**, and with **complex vocal behaviours.**
- While most killer whale populations in other regions **show high site fidelity** and residence rates, resident populations are yet to be identified in the northern Indian Ocean.
- Given their **highly social and curious behaviour**, orcas often approach fishing vessels to assess if there is any fish in the net, or just to observe people on the vessel.
- In the wild, there are **no instances of killer whales fatally attacking humans.**
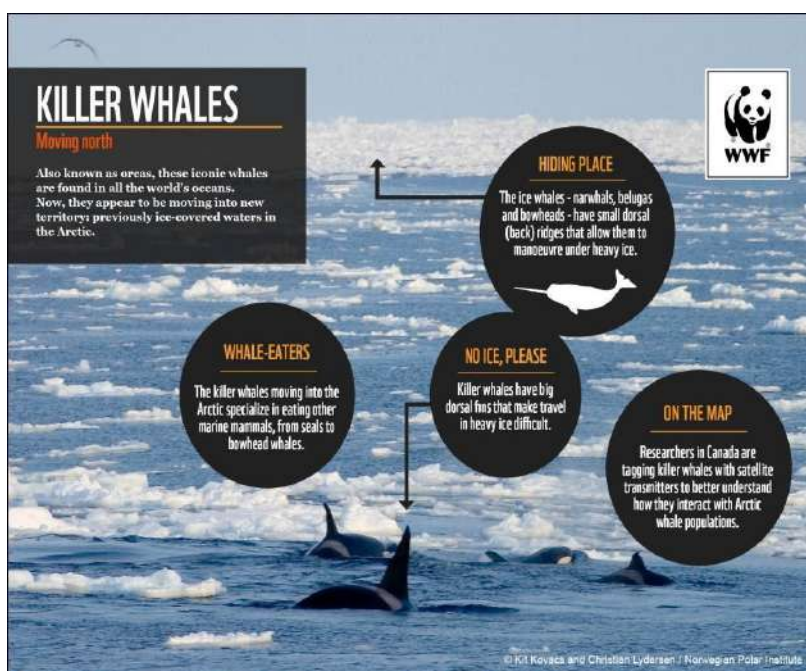
Climate Vulnerability Index

Context
- Environmental think tank **Council on Energy, Environment and Water has** carried a first-of-its-kind district-level climate vulnerability assessment, or Climate Vulnerability Index (CVI).
- It has analysed 640 districts in India to assess their vulnerability to extreme weather events such as cyclones, floods, heatwaves, droughts, etc.

How is the Climate Vulnerability Index assessed?
- The CVI maps
- **exposure** (that is whether the district is prone to extreme weather events),
- sensitivity (the likelihood of an impact on the district by the weather event), and
- adaptive capacity (what the response or coping mechanism of the district is).
  It helps map critical vulnerabilities and plan strategies to enhance resilience and adapt by climate-proofing communities, economies and infrastructure. Instead of looking at climate extremes in isolation.

Why does India need a climate vulnerability index?
- According to Germanwatch's 2020 findings, **India is the seventh-most vulnerable country with respect to climate extremes**.
- Extreme weather events have been increasing in the country such as super cyclone Amphan in the Bay of Bengal, which is now the strongest cyclone to be recorded in the country.

What are the findings of the climate vulnerability index?
- According to CVI, **Assam, Andhra Pradesh, Maharashtra, Karnatakaand Bihar** are most vulnerable to extreme climate events such as floods, droughts and cyclones in India.
- While 27 Indian states and union territories are vulnerable to extreme climate events, 463 districts out of 640 are vulnerable to extreme weather events
- More than 80 per cent Indians live in districts vulnerable to climate risks – that is 17 of 20 people in India are vulnerable to climate risks, out of which every five Indians live in areas that are extremely vulnerable
- **More than 45 per cent of these districts have undergone "unsustainable landscape and infrastructure changes''.**
- North-eastern states are more vulnerable to floods.
- South and central are most vulnerable to extreme droughts

Which are the best performing states and why?
- The CVI has ranked 20 states out of which **Assam and Andhra Pradesh are the most vulnerable to extreme weather event**s, and Kerala, Tripura and West Bengal are the least vulnerable.
- **Kerala and west Bengal have performed well comparatively**, despite both being coastal states and dealing with the threat of cyclones and floods annually.
- The Index takes into account **certain indicators** like <u>availability of critical infrastructure like cyclone and flood shelters, government mechanisms in place including updating of disaster management plans, mitigation strategies, standard operating procedures before, during and after an extreme weather event such as how people and livestock are being evacuated or how food is being mobilized and how the administration prevents loss of lives and livelihoods.</u>

What are the recommendations that have been made?
- Develop a **high-resolution Climate Risk Atlas (CRA)** to map critical vulnerabilities at the district level and better identify, assess, and project chronic and acute risks such as extreme climate events, heat and water stress, crop loss, vector-borne diseases and biodiversity collapse.
- A CRA can also support coastal monitoring and forecasting, which are indispensable given the rapid intensification of cyclones and other extreme events.
- **Establish a centralized climate-risk commission** to coordinate the environmental de-risking mission.
- **Undertake climate-sensitivity-led landscape restoration** focused on rehabilitating, restoring, and reintegrating natural ecosystems as part of the developmental process.
- **Integrate climate risk profiling with infrastructure planning** to increase adaptive capacity.
- **Provide for climate risk-interlinked adaptation financing** by creating innovative CVI-based financing instruments that integrate climate risks for an effective risk transfer mechanism.
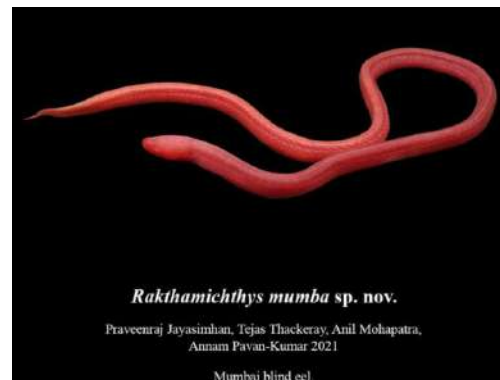
New species of Blind Freshwater Eel

Context

- The Indian New species of blind freshwater eel discovered from Mumbai well

More about news

- The new species is a `**hypogean freshwater eel'** and is named as **'Rakthamichthys Mumba'**, after city Mumbai,"
- It is the **first completely blind subterranean freshwater fish species** to be described from Maharashtra and the northern Western Ghats.
- The species' name 'mumba' refers to the locality, the city of Mumbai.
- The word 'mumba' derives its roots from the Marathi language, which is a tribute to Mumba Aai, a deity worshipped by the inhabitants of this city.

Rakthamichthys mumba sp. nov.

Praveenraj Jayasimhan, Tejas Thackeray, Anil Mohapatra, Annam Pavan-Kumar 2021

Mumbai blind eel.

Namami Gange Programme

Context

- Chacha Chaudhary Declared Mascot For Namami Gange Programme.

National Mission for Clean Ganga (NMCG)

- NMCG has been focusing on youth as part of its outreach and public communications efforts as they are the impellers of change.
- NMCG has tied-up with **Diamond Toons to develop and distribute comics, e-comics and animated videos**.
- The content will be designed with the objective of bringing about **behavioral change amongst children** towards Ganga and other rivers.
- The total estimated budget for the project is Rs. 2.26 Cr.
- Chacha Chaudhary can be useful **in ground-level activation for Ganga rejuvenation**.
- Initially, the comics will be launched in Hindi, English and Bengali.

Namami Gange Programme'

- It is an **Integrated Conservation Mission**, approved as 'Flagship Programme' by the Union Government in June 2014 with budget outlay of **Rs.20,000 Crore** to accomplish the **twin objectives of effective abatement of pollution, conservation and rejuvenation of National River Ganga.**
- Main pillars of the Namami Gange Programme are:-
  - o Sewerage Treatment Infrastructure
  - o River-Front Development
  - o River-Surface Cleaning
  - o Bio-Diversity
  - o Afforestation
  - o Public Awareness
  - o Industrial Effluent Monitoring
  - o Ganga Gram
- Its implementation has been divided into
  - o **Entry-Level Activities** (for immediate visible impact),
  - o **Medium-Term Activities** (to be implemented within 5 years of time frame) and
  - o **Long-Term Activities** (to be implemented within 10 years).

MCQs

1. **Consider the following statements about 'Production Linked Incentive' scheme:**
1. This scheme provides incentives based on incremental sale.
2. It aims to boost domestic manufacturing and attract large investments in the electronics value chain.
3. This scheme is administered by finance ministry.
Choose the correct codes given below.
a) 1 and 2 only   b) 2 and 3 only
c) 1 and 3 only   d) 1, 2 and 3

2. **Which of the following is incorrect about 'Kisan Credit Card (KCC)'?**
1. Only Scheduled Commercial Banks can issue it.
2. Dairy farmers cannot get KCC.
3. It can only be issued to the individual farmers, not to Self Help Groups.
Choose the codes from below
a) 1 and 2 only   b) 2 and 3 only
c) 1 and 3 only   d) 1, 2 and 3

3. **Consider the following about 'SWADES' Initiative**
1. It is an initiative to promote and showcase the rich heritage of India in the Non-Resident Indians in order to boost tourism.
2. It is an initiative of the Ministry of Tourism.
Which of the above statements is/are correct?
a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

4. **Consider the following about 'National Skill Development Corporation'**
1. It is a not-for-profit public limited company.
2. It is totally owned by the Ministry of Skill Development and Entrepreneurship.
3. It was set up under the Public Private Partnership (PPP) model.
Which of the above statements is/are incorrect?
a) 1 & 2 only   b) 2 only
c) 3 only   d) 1 & 3 only

5. **Consider the following statements about Payments Infrastructure Development Fund (PIDF) which was announced recently:**
1. It aims to promote the usage of Internet Banking in the country.
2. It will be administered and managed by RBI.
3. Both the Government of India and RBI have contributed to this 500 crore fund in a 50:50 manner.
Which of the above statements is/are correct?
a) 1 and 2 only   b) 2 only
c) 1 and 3 only   d) 1, 2 and 3

6. **Consider the following statements about MicroRna which was seen in news recently:**
1. It is a small coding RNA molecule found in plants, animals and some viruses.
2. It functions in RNA silencing and post-transcriptional regulation of gene expression.
Select the correct answer using the code given below:
a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

7. **Consider the following statements about 'National AI Portal'**
1. It will work as a one stop digital platform for AI related developments in India.
2. It will be operated by NITI Aayog.
3. One can also learn about AI technologies and search for jobs related to AI on this portal.
Which of the above statements is/are correct?
a) 1 and 2 only   b) 2 and 3 only
c) 1 and 3 only   d) 1, 2 and 3

8. **With reference to 'Interstate River Water Disputes', Consider the following.**
1. Article 260 of the Constitution provides for the adjudication of inter-state water disputes.
2. Parliament may provide that neither the Supreme Court nor any other court shall exercise jurisdiction in such disputes.
3. Vansadhara river water dispute is in between Andhra Pradesh and Telangana.
Which of the above statements is/are correct?
a) 1 and 2 only   b) 2 only
c) 1 and 3 only   d) 1, 2 and 3

9. **Consider the following**
1. The waters of Bay of Bengal are generally colder than that of Arabian Sea.
2. Cyclones formed in Bay of Bengal are more generally frequent and stronger than Arabian Sea.
Which of the above statements is/are correct?
a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

10. **With reference to recently launched 'SATYABHAMA' portal, consider the following**
1. It aims to promote research and development in Agricultural technologies.
2. It has been developed by the National Informatics Centre (NIC).
Which of the above statements is/are correct?
a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

11. **Consider the following statements about National Disaster Response Fund (NDRF)**

1. It is located in the Contingency Fund of India.
2. All the calamities under it are managed by the Ministry of Home Affairs.
3. CAG is not empowered to audit the accounts of NDRF.

Which of the above statements is correct?

a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

12. **With reference to the newly constituted 'Animal Husbandry Infrastructure Development Fund', consider the following statements**

1. It is a part of Atma Nirbhar Bharat Abhiyan.
2. Interest subvention provided to Aspirational districts is different from other districts.
3. Moratorium periods have also been provided before the repayment period.

Which of the above statements are correct?

a) 1 and 2 only   b) 2 and 3 only
c) 1 and 3 only   d) 1, 2 and 3

13. **Which of the following statements is/are correct about the Agricultural and Processed Foods Export Promotion Development Authority?**

1. It is a statutory body.
2. It is under the Ministry of Agriculture and Farmers' Welfare.
3. It is mandated with the responsibility of export promotion and development of products such as Fruits, Vegetables, Meat etc.

Select the correct answer using code given below

a) 1 and 3 only   b) 2 and 3 only
c) 1 and 2 only   d) 1, 2 and 3

14. **Consider the following statements about 'Pradhan Mantri Mudra Yojana':**

1. A maximum loan of 50 lakh Rs can be provided under it.
2. Loans under this scheme are collateral-free.
3. Only scheduled commercial banks are allowed to run this scheme.

Which of the above statements are correct?

a) 1 and 2 only   b) 2 only
c) 1 and 3 only   d) 1, 2 and 3

15. **With reference to the Sugarcane Pricing, consider the differences between Fair and Remunerative Price (FRP) and Minimum Support Price (MSP).**

1. FRP is announced for Sugarcane and MSP is announced for Sugar.
2. FRP is the minimum price paid by the sugar mills to farmers, whereas MSP is the minimum price paid by the government to the farmers.

3. FRP is decided by the respective state governments whereas MSP is decided by the Commission for Agricultural Costs and Prices (CACP).

Which of the above statements are correct?

a) 1 and 2 only   b) 2 and 3 only
c) 1 and 3 only   d) 1, 2 and 3

16. **Consider the following statements with respect to wheat production in India:**

1. Recently, production of wheat in Madhya Pradesh has surpassed the production in Punjab.
2. Area under wheat cultivation in Madhya Pradesh is higher than Punjab.

Which of the statements given above is/are correct?

a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

17. **Consider the following statements about the Keeladi excavation:**

1. It suggest that the society in Keeladi had used animals predominantly for agricultural purposes.
2. It suggests that it was the first urbanized civilization of India.
3. Keeladi civilization flourished on the bank of River Vaigai.

Which of the above-mentioned statements are correct?

a) 1 and 2 only   b) 2 and 3 only
c) 1 and 3 only   d) 1, 2 and 3

18. **Which of the following statements is/are correct about Essential commodity act?**

1. It gives States the power to regulate dealer licensing and confiscate the stock.
2. Drugs are also covered under essential commodity act.
3. Private individuals or organizations are not covered under this act.

Select the correct answer using code given below:

a) 1 and 2 only   b) 2 and 3 only
c) 1 only   d) 1, 2 and 3

19. **Which of the following statements is/are correct about the 'Vivad Se Vishwas' Scheme?**

1. It aims at reducing litigations in the direct as well as indirect tax payments.
2. It is specially launched keeping in mind fall in revenue income due to Covid-19 lockdown.

Select the correct answer using code given below:

a) 1 only   b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

20. **With reference to 'Quality Council of India', consider the following**

1. Its chairman is appointed by the President of India.
2. It is an autonomous body under the Ministry of Commerce and Industry.
3. Indian private industry also has representation in QCI membership.

Which of the above statements are correct?

a) 1 and 2 only   b) 1 and 3 only

c) 2 & 3 only   d) 1, 2 and 3

21. With reference to the Legislative Assembly of a State in India, consider the following statements:

1. The Governor makes a customary address to Members of the House at the commencement of the first session of the year.
2. When a State Legislature does not have a rule on a particular matter, it follows the Lok Sabha rule on that matter.

Which of the statements given above is/are correct?

a) 1 only   b) 2 only

c) Both 1 & 2   d) Neither 1 nor 2

22. Consider the following statement about Border Area Development Project:

1. It was introduced for balanced development of border area infrastructure.
2. It was started in 2011 after the Mumbai Attack.
3. Government has decided to spend 10% of total funds only on strengthening the Indo - China border.

Which of the above statements is/are correct?

a) 1 and 2 only   b) 2 and 3 only

c) 1 & 3 only   d) 1, 2 and 3

23. Consider the following statements about taxation of local bodies in India:

1. Rural local bodies generate lower revenue from their own sources than urban local bodies.
2. Share of Property tax in GDP has been increasing in the past two decades.

Which of the above statements is/are correct?

a) 1 only   b) 2 only

c) Both 1 & 2   d) Neither 1 nor 2

24. In India, which of the following review the independent regulators in sectors like telecommunications, insurance electricity, etc.?

1. Ad Hoc Committee set up by the Parliament.
2. Parliamentary Department Related Standing Committee
3. Finance Commission
4. Financial Sector Legislative Reforms Commission
5. NITI Aayog

Select the correct answer using the code given below.

a) 1 and 2   b) 1, 3 and 4

c) 3, 4 and 5   d) 2 and 5

25. Which of the following statements is/are correct about India- Nepal Border Conflict.

1. Treaty of Sugauli 1916 demarcates India -Nepal border.
2. Exact Source of the Kali River is the main cause of dispute.

Select the correct answer using the code given below:

a) 1 only   b) 2 only

c) Both 1 & 2   d) Neither 1 nor 2

26. Consider the following statements about Golden Langur:

1. It is endemic to Western Ghats.
2. It is categorized as critically endangered in IUCN Red list.

Which of the above statements is/are correct?

a) 1 only   b) 2 only

c) Both 1 & 2   d) Neither 1 nor 2

27. Which of the following is/are the Digital tax levied in India

1. Equalisation levy on digital platforms for marketing.
2. 2% equalisation levy on e-commerce companies.

Select the correct answer using code given below

a) 1 only   b) 2 only

c) Both 1 & 2   d) Neither 1 nor 2

28. Consider the following statements:

1. The Parliament(Prevention of Disqualification) Act, 1959 exempts several posts from disqualification on the grounds of 'Office of Profit'.
2. The above-mentioned Act was amended five times.
3. The term 'Office of Profit' is well-defined in the Constitution of India.

Which of the statements given above is/are correct?

a) 1 and 2 only   b) 3 only

c) 2 and 3 only   d) 1, 2 and 3

29. Microplastics is found in which of the following products?

1. Toothpaste
2. Face wash
3. PET Bottles
4. Detergent

Select the correct answer using the code given below.

a) 3 only   b) 2, 3 and 4 only

c) 1, 2 and 3 only   d) 1, 2, 3 and 4

30. Consider the following statements about 'Sahakar Mitra' scheme which was launched. recently:

1. It is essentially an internship program for young professionals in cooperative societies.
2. It is being implemented by NITI Aayog.
3. Only those who want to serve in this noble cause should apply as no financial incentives will be provided to the interns.

Which of the above statements is/are correct?

a) 1 only   b) 1 and 2 only

c) 2 and 3 only   d) 1, 2 and 3

31. Consider the following statements about the Indian Ocean Commission (IOC):

1. It is an intergovernmental body to protect the interests of the Western Indian Ocean islands.

2.   India is a founding member of this organization.

Which of the above statements is/are correct?

a) 1 only   b) 2 only

c) Both 1 & 2   d) Neither 1 nor 2

32.   Consider the following statements about Small Farmers Agribusiness Consortium (SFAC):

1.   It is a public sector undertaking under Ministry of Agriculture, Cooperation and Farmers' Welfare.

2.   It has been entrusted with the task of implementing the e-NAM Scheme.

Which of the above statements is/are correct?

a) 1 only   b) 2 only

c) Both 1 & 2   d) Neither 1 nor 2

33.   Consider the following statements about Reserve Tranche:

1.   It is a portion of the required quota of currency each member country must provide to the International Monetary Fund (IMF).

2.   It can be utilized by member countries for its own purposes after paying service fee or fulfilling economic reform conditions.

Which of the statements given above is/are correct?

a) 1 only   b) 2 only

c) Both 1 & 2   d) Neither 1 nor 2

34.   Consider the following statements about Lonar Lake:

1.   It is an artificial lake which was made in the 12th century.

2.   It is a notified geo heritage site.

Which of the statements given above is/are correct?

a) 1 only   b) 2 only

c) Both 1 & 2   d) Neither 1 nor 2

35.   Consider the following statements about National Green Tribunal:

1.   It is a statutory body formed under Environment Protection Act, 1986.

2.   It is bound by the procedure laid down under the Code of Civil Procedure 1908.

3.   It has original as well as appellate jurisdiction.

Which of the statements given above is/are correct?

a) 1 and 2 only   b) 2 and 3 only

c) 3 only   d) 1, 2 and 3

36.   Consider the following statements:

1.   No criminal proceedings shall be instituted against the Governor of a State in any court during his term of office.

2.   The emoluments and allowances of the Governor of a State shall not be diminished during his term of office.

Which of the statements given above is/are correct?

a) 1 only   b) 2 only

c) Both 1 & 2   d) Neither 1 nor 2

37.   Consider the following statements about Wholesale Price Index (WPI):

1.   It measures the changes in the prices of goods and services sold and traded in bulk by wholesale.

2.   It is released by the Department for Promotion of Industry and Internal Trade.

3.   RBI uses WPI changes as a central measure of inflation.

Which of the statements given above is/are correct?

a) 1 and 2 only   b) 2 only

c) 1 only   d) 1, 2 and 3

38.   Consider the following statements with reference to the PM Economic Advisory Council:

1.   It is a non-constitutional, permanent and independent body.

2.   It came into existence in 2014.

3.   Its recommendations are advisory in nature.

Which of the statements given above is/are correct?

a) 1 and 3 only   b) 2 and 3 only

c) 2 only   d) 1, 2 and 3

39.   Consider the following statements about the India Gas Exchange:

1.   It is the first nationwide digital gas trading platform.

2.   It will allow buyers and sellers of natural gas to trade both in the spot market and in the forward market.

3.   It will trade imported as well domestically produced gas.

Which of the statements given above is/are correct?

a) 1 and 2 only   b) 2 and 3 only

c) 1 & 3 only   d) 1, 2 and 3

40.   Consider the following statements about India's first online waste exchange:

1.   It is launched by the Union Ministry of Forest and Climate Change.

2.   The program is launched for safe disposal of toxic wastes and to promote recycling and reuse of toxic wastes.

Which of the above statements is/are correct?

a) 1 only   b) 2 only

c) Both 1 & 2   d) Neither 1 nor 2

41.   Consider the following statements about G4 VIRUS:

1.   It is a news strain of influenza virus that is infecting Chinese pigs.

2.   G4 virus can transmit from animals to humans.

Which of the above statements is/are incorrect?

a) 1 only   b) 2 only

c) Both 1 & 2   d) Neither 1 nor 2

42.   Consider the following statements about LIDAR:

1.   It is a remote sensing method that uses light to measure ranges to the Earth.

2. LIDAR systems allow scientists and mapping professionals to examine both natural and manmade environments with accuracy, precision, and flexibility.

Which of the above statements is/are correct?

a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

43. Consider the following statements about Global Partnership for Artificial Intelligence (GPAI):

1. It is a multi-stakeholder initiative to guide the responsible development and use of AI.
2. India is not a member of this partnership.

Which of the above statements is/are correct?

a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

44. Consider the following statements about Energy Efficiency Services Limited (EESL):

1. It works under the Ministry New and Renewable Energy.
2. It is implementing the world's largest energy efficiency portfolio in the country.

Which of the above statements is/are correct?

a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

45. Which of the following statements is/are correct about Narcondam Hornbill.

1. It is endemic to North East India.
2. It is listed as 'Endangered' under the IUCN Red List.
3. Its population is declining very sharply

Select the correct answer using code given below:

a) 1 and 2 only   b) 2 and 3 only
c) 2 only   d) 1, 2 & 3

46. Consider the following statements with regard to GeM portal:

1. It offers both goods and services for procurement by the government.
2. Vendors need to classify the country of origin of products, presence of local content in each product.
3. It is run by the Ministry of Electronics and Information technology.

Which of the statements given above is/are correct?

a) 1 and 2 only   b) 2 and 3 only
c) 3 only   d) 1, 2 & 3

47. Consider the following statements about Carnatic Music:

1. Tyagaraja, Muthuswami Dikshitar and Syama Sastri are also known as trinity of Carnatic music.
2. Purandara is also known as Pitamah of Carnatic Music.

Which of the statements given above is/are correct?

a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

48. With reference to the `Gram Nyayalaya Act', which of the following statements is/are correct?

1. As per the Act, Gram Nyayalayas can hear only civil cases and not criminal cases.
2. The Act allows local social activists as mediators/reconciliators.

Select the correct answer using the code given below

a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

49. Which of the following is / are the function/functions of the Cabinet Secretariat?

1. Preparation of agenda for Cabinet Meetings
2. Secretarial assistance to Cabinet Committees
3. Allocation of financial resources to the Ministries

Select the correct answer using the code given below.

a) 1 only   b) 2 and 3 only
c) 1 & 2 only   d) 1, 2 & 3

50. Consider the following statements with regard to National Productivity council:

1. It has equal representation from government, private and workers organisations.
2. It is an autonomous body under the Labor Ministry.

Which of the statements given above is/are correct?

a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

51. Consider the following statements about operation Green:

1. It seeks to stabilize the supply of Tomato, Onion, Potato and pulses.
2. The Ministry of Agriculture has launched the scheme.
3. NAFED will be the Nodal Agency to implement price stabilization measures

Which of the statements given above is/are correct?

a) 1 and 2 only   b) 2 and 3 only
c) 3 only   d) 1, 2 & 3

52. Consider the following statements about TRIFED:

1. It is a national-level apex organization functioning under the administrative control of the Ministry of Tribal Affairs.
2. TRIFED aims to improve the livelihood of the tribal communities by creating a sustainable market and create business opportunities for tribal people.
3. It also involves capacity building of the tribal and imparting them training for undertaking a particular activity.

Which of the statements given above is/are correct?

a) 1 and 2 only   b) 2 and 3 only
c) 1 and 3 only   d) 1, 2 & 3

53. Sometimes the word "SIDDI Community" appears in the news. Which of the following are correct regarding this community?

1. Siddi community has got its first representative in Karnataka State legislature.
2. They are an ethnic group inhabiting India and Bhutan.
3. In India, they are spread along the coast of Gujarat, Karnataka, Maharashtra and Andhra Pradesh.

Select the correct answer using code given below:

a) 1 and 3 only   b) 2 and 3 only
c) 2 only   d) 1, 2 & 3

54. Arrange the following Commissions chronologically on the basis of their date of setting:

1. The Second Administrative Reforms Commission
2. The Eleventh Finance Commission
3. Punchhi Commission
4. Sarkaria Commission

Select the correct answer using the code given below.

a) 4, 2, 1, 3   b) 4, 3, 2, 1
c) 3, 2, 4, 1   d) 3, 4, 1, 2

55. Which of the following is/are Small Savings Schemes?

1. National Savings Time Deposit Account
2. Sukanya Samriddhi Account
3. Public Provident Fund Account
4. Kisan Vikas Patra Account

Select the correct answer using code given below

a) 2, 3 and 4 only   b) 1, 2 and 4 only
c) 2 and 4 only   d) 1, 2, 3 and 4

56. Recently cooling emissions and policy synthesis report was released. Which of the following statements is/are correct about this report?

1. It is released by The Intergovernmental Panel on Climate Change.
2. It is based on assessment of development and climate benefits of efficient and climate friendly cooling.

Select the correct answer using code given below:

a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

57. Which of the following statements is/are correct with respect to Promotion of Medical Device Park.

1. It is a Central Sector Scheme, with a total financial outlay of Rs. 4 lakh Crore, which will support establishment of 4 Medical Device Parks.
2. Proposals under the Scheme will be approved by the cabinet.

Select the correct answer using code given below:

a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

58. Recently a New Report titled 'LEAD Poisoning in Children' was launched by UNDP. Which of the following items may contain lead?

1. Paint
2. Petrol
3. Battery
4. Water pipes
5. Lipstick

Select the correct answer using code given below:

a) 1, 2 and 3 only   b) 1 and 3 only
c) 1, 2, 3 and 4 only   d) 1, 2, 3, 4 and 5

59. "Consider the following statements regarding Monoclonal Antibodies:

1. They form naturally in a person after 15 days of vaccination.
2. They have the ability to bind to specific parts of the spike protein

Which of the above statements is / are correct?"

a) 1 only   b) 2 only
c) Both 1 & 2   d) Neither 1 nor 2

60. "Consider the following statements regarding National Population Register(NPR):

1. It is not mandatory for every usual resident of India to register in the NPR.
2. No biometric data will be covered under it.
3. It will be conducted under the aegis of the Registrar General and ex-Officio Census Commissioner, India.

Which of the above statements is / are correct?"

a) 1 and 2 only   b) 3 only
c) 2 and 3 only   d) All of the above

ANSWERS

1. a	16. c	31. a	46. a
2. d	17. c	32. b	47. c
3. d	18. a	33. a	48. b
4. b	19. d	34. b	49. c
5. b	20. c	35. c	50. a
6. b	21. a	36. c	51. c
7. c	22. c	37. b	52. d
8. b	23. a	38. a	53. a
9. b	24. a	39. a	54. a
10. b	25. b	40. b	55. d
11. d	26. d	41. d	56. b
12. d	27. c	42. c	57. d
13. a	28. a	43. a	58. d
14. b	29. d	44. b	59. b
15. a	30. a	45. c	60. b