

GS ANALYST

MONTHLY CURRENT AFFAIRS MAGAZINE

- ✓ Coverage of Monthly topics for GS Paper 1, 2, 3 & 4
- ✓ Key Concepts & Prelims Specific Topics
- ✓ Questions for Answer Writing Practice

PRELIMS

- Partial solar eclipse of the year 2022
- Global Multidimensional Poverty Index
- INS Arihant validates India's Nuclear Capability
- Researchers detect barium in atmospheres of 2 exo-planets
- 'One Nation, One Fertilizer' scheme
- and many more

MAINS

- Judgement addressing Women bodily Rights for Abortion
- India's drug regulation problem
- China's Wolf-Warrior Diplomacy
- Online Gaming Market in India, and proposed rules
- Tokenization and prevention of online card fraud
- Need of Legal Rights to Animals, Trees, and Rivers
- and many more

KEY CONCEPTS

- Mauna Loa
- Region ruled by Kanishka
- Indus River System
- Lothal
- China's 'nine-dash line'
- Mudumalai Tiger Reserve
- Black Sea
- Thundi Beach and Kadmat Beach
- and many more

CONTEMPORARY ISSUE BASED ESSAY

**The Time to Repair a Roof is when
The Sun is shining**

— **Disclaimer** —

The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

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SECTION: A

(MAINS)

CURRENT AFFAIRS

SUPREME COURT'S LANDMARK JUDGEMENT ADDRESSING WOMEN BODILY RIGHTS FOR ABORTION

CONTEXT:

In a Judgment, the Supreme Court recently gave decision on abortion rights for all adult women in India to have the right to seek a safe abortion through a medical expert till up to 24 weeks of pregnancy.

◎ BACKGROUND

- **Section 312** of the **Indian Penal Code, 1860** used to criminalise voluntarily "**causing miscarriage**" even when the miscarriage is with the pregnant woman's consent, except when the miscarriage is caused to save the woman's life.
 - ▶ This means that the woman herself, or anyone else including a medical practitioner, could be prosecuted for an abortion.
- Then came the **Medical Termination of Pregnancy (MTP) Act, 1971**.
- The act allowed pregnancy termination by a medical practitioner in **two** stages:
 - ▶ If the continuance of the pregnancy would involve a risk to the life of the pregnant woman or of grave injury to her physical or mental health or;
 - ▶ If there is a substantial risk that if the child were born, it would suffer from such physical or mental abnormalities as to be seriously "handicapped" before agreeing to terminate the woman's pregnancy.

- A **single doctor's opinion** was necessary for abortions up to **12 weeks after** conception.
- For pregnancies between **12 to 20 weeks old**, the opinion of **two doctors** was required to determine

and available for a married pregnant woman should be accessible and available to any pregnant woman, and that a classification based on marital status is **fallacious and illegal**.

- **Inclusive of the concept of Marital Rape:** An acknowledgement has put that a pregnancy can be sought to be terminated on the ground of it being as a result of rape by the **husband** of the pregnant woman must be recognised.
- **Confidentiality:** This judgment clarifies that while the need to report mandatorily remains, the identity of the **pregnant person** need not be disclosed in the cases of consensual sexual activity and where the minor and/or her guardian request the medical service provider to maintain confidentiality.
- **Extra legal Requirement :** It recognises the extra-legal requirements that medical practitioners insist upon before providing MTP services, only to safeguard themselves due to the context of criminality and the present law is **non-inclusive** and the terminology used is **exclusionary**.

MTP Amendment Act: (Recent Guidelines)

- In 2021, Parliament amended the law to allow for abortions based on the advice of one doctor for pregnancies up to **20 weeks**.
- The modified law needs the opinion of **two doctors** for pregnancies between 20 and 24 weeks.
- Further, for pregnancies **between 20 and 24 weeks**, rules specified **seven categories** of women who would be eligible for seeking termination under **Section 3B** of rules prescribed under the MTP Act;
 - ▶ Survivors of sexual assault or rape or incest,
 - ▶ Minors,
 - ▶ Change of marital status during the on-going pregnancy (widowhood and divorce),
 - ▶ Women with physical disabilities (major disability as per criteria laid down under the Rights of Persons with Disabilities Act, 2016)
 - ▶ Mentally ill women including mental retardation,

◎ ANALYSIS

Key highlights of the Judgement:

There are **five key aspects** of this judgment that need to be shared:

- **Acknowledging the context of criminality:** IPC criminalises accessing and providing an abortion except where there is an **immediate necessity** to save the life of the pregnant woman, and that the MTP Act is an exception to this criminal offence.
- **Removal of 'compulsory' marital status:** The judgment basically holds that what is accessible

- ▶ The foetal malformation that has a substantial risk of being incompatible with life or if the child is born it may suffer from such physical or mental abnormalities to be seriously handicapped, and
- ▶ Women with pregnancy in humanitarian settings or disasters or emergencies may be declared by the Government.

What was the need of amendment in the existing law?

- Access to health services and the right to make a decision about managing the pregnancy or obtaining an abortion has a lot to do with individual rights. This conservative approach of the state has the potential of causing irreversible damage to female health and it can also be seen as an infringement of women's rights.
- For Rape survivors and issues like Marital Rape is to be addressed which is many a times resulted

in a situation of survivors getting pregnant unwantedly.

What are women's reproductive rights?

Based on the multiple definitions of reproductive rights, it can be said that they include some or all of the following rights:

- Right to safe and legal abortion.
- Right to control one's reproductive functions.
- Right to access in order to make reproductive choices free of coercion, discrimination and violence.
- Right to access education about contraception and sexually transmitted diseases and freedom from coerced sterilization and contraception.
- Right to protection from gender-based practices such as female genital cutting and male genital mutilation.

PRACTICE QUESTION

1. Discuss the challenges faced by women to have access to reproductive rights in order to exercise their human rights? Explain how the restrictions on abortion contradict the 'right to life'.
2. What is the legal status of freedom of choice and reproductive rights in India? Give the government advice on how to make the abortion policy effective.

PRISONS IN INDIA

CONTEXT:

In the recently highlighted issue, the Border Security Force handed over the Bangladeshi illegal migrants to their country without any procedure as established due to the lack of spaces in 'Prisons'.

- This has highlighted the concerns of overcrowded and staff less prisons in India.

What is the present situation?

An analysis of prison statistics by the **India Justice Report (IJR)** has found:

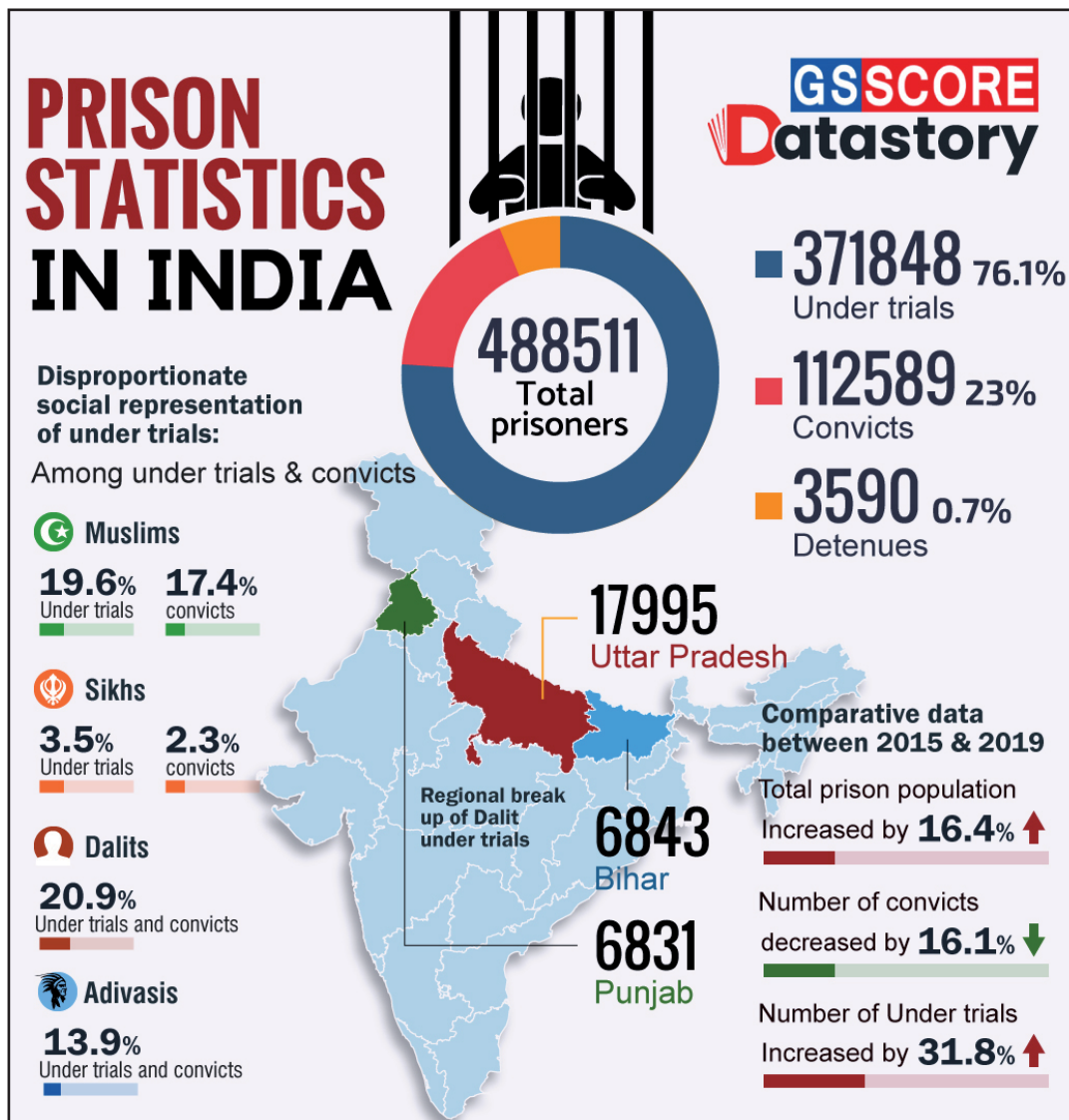
- **Increase in arrest:** An increase of 7.7 lakh in the number of people arrested in 2021 as compared to 2020.
- **Increased prisoners:** The number of prisoners has shot up from 3.7 lakh to 5.54 lakh in the same period — a 48% increase.
 - ▶ It was most acute in **three northern States/ Union Territories** — Uttarakhand, Uttar Pradesh, and Delhi. In these three regions, the occupancy rate crossed **180%** in 2021 (180 prisoners for every 100 vacancies).

- ▶ The **highest increase** was observed in Delhi, where the occupancy rate increased from 60% to 183%.

- **Decrease in staff:** While on the one hand, jails are overflowing, on the other, the **vacancies for prison officers** are alarmingly high in some States. In **Uttarakhand, Chhattisgarh, Bihar and Jharkhand** over 60% of officer positions were vacant.

What are the major issues across the jails in India?

- **Overcrowding:** Under-trials of the prisoners is prominent in Indian states, which ultimately lead to overcrowding in jails.



- **Shortage of staff:** The ratio between the prison staff and the prison population is approximately 1:7. It means only one prison officer is available for 7 prisoners.
- **Custodial Tortures /Deaths**
- **Other issues**
 - ▶ prolonged detention of under-trial prisoners
 - ▶ unsatisfactory living conditions
 - ▶ lack of treatment Programs
 - ▶ Constant allegations for the indifferent and even inhuman approaches of prison staff
 - ▶ Lack of legal aid
 - ▶ Physical abuse of prisoners by the guards

Right of Prisoners:

- The rights of prisoners are covered under the **Prison Act, 1894**.

Important Rights

- Right To Legal Aid
- Right To Speedy Trial
- Right Against Solitary Confinement And Protection From Torture

- ▶ Suicide in prisons

Measures taken by the Government

- **E-Prisons Project:** The E-prisons project supplements the Prisoner Information Management system (PIMS) which provides a centralized approach for recording and managing prisoner information and generating different kinds of reports.
- **Model Prison Manual 2016:** The manual provides detailed information about the legal services (including free services) available to prison inmates. The Ministry of Home Affairs has issued

an advisory to all **States and UTs informing** them about the legal aid facility available to under-trial prison inmates.

- **National Legal Services Authority:** It has launched a web application to facilitate the under trial prisoners with **free legal services**. The objective of the above application is to make the legal services system more transparent and useful.

Exemplary developments:

- The **Maharashtra government and Azim Premji Philanthropic Initiatives Pvt Ltd** have signed a MoU recently with an aim to work together to design, implement, and monitor and document a model programme to provide legal help to prisoners, especially under-trials.

Required measures:

- **More space share**
- **New reforms to the judicial process to decrease the length of trials and reduce the number of inmates.**
- **Modernisation:** Need to make jails modern and technologically adept with stringent security measures
- **Better standard of living:** Need to introduce better living and health facilities, libraries, and training programmes for prisoners to help them get back to society.
- **Focus on mental health:** Effective initiatives to promote mental development.
- **Introducing Pattern-or-Practise Investigations (PoP Investigation)** against prison administration, on lines of the United States that first introduced PoP Investigations in 1991 to initiate police reforms, could be key to solving the crisis.

PRACTICE QUESTION

1. Does the prison administration in India give the right to live with dignity like all other citizens of the country? Discuss
2. What is the E-Prisons Project initiative? Describe how the model prison manual 2016 is beneficial for Indian prisons.

INDIA'S DRUG REGULATION PROBLEM

CONTEXT:

The recent WHO allegation saying cough syrups manufactured by an Indian firm could potentially be linked to the death of 66 children in Gambia raises the burning crucial questions related to drug regulation in the country.

◎ ABOUT**What was the reason for death of Children? (A Case Study)**

- The syrup was found by WHO to be adulterated with **diethylene glycol (DEG) and ethylene glycol**.
- These chemicals are toxic to humans, and can result in **abdominal pain, vomiting, diarrhoea, inability to pass urine, headache, and altered mental state**.
- It can also lead to acute kidney injury that can prove **fatal** in children.

◎ ANALYSIS**What are the present Drug regulations in India?**

Drug regulation in India is a complex process managed by law, mainly the Drugs and Cosmetics Act of 1940, and by multiple ministries, including the **Ministry of Health and Family Welfare**. The law creates a web of regulatory authorities to govern the process at both the **Central** and the **State level**.

At Centre level:

- At the central level, the **Drugs and Cosmetics Act, 1940**, has created the **Central Drugs Standard**

Control Organisation (CDSCO), within which the Drugs Controller General of India (DCGI) is the key regulatory authority, acting under the advice of the **Drug Technical Advisory Board (DTAB)** and the **Drug Consultative Committee (DCC)**.

- CDSCO operates through zonal offices spread across the country, which have designated roles in drug regulation, such as inspections, recalls, and market surveillance.
- CDSCO also has a role in overseeing the functioning of state authorities involved in drug regulation.

At State Level:

- There exist **State Drug Regulatory Authorities (SDRAs)**, which are statutory bodies created under the Drugs and Cosmetics Act, 1940.
- Falling under the ambit of the respective Health Departments of each state, SDRAs are tasked with limited aspects of **drug regulation**.
- SDRAs are often conjoined with the **food regulation department** under the Food and Drug Administration (FDA) in that state, which complicates the proper demarcation of regulatory responsibilities.

What is the Process of drug regulation?

- CDSCO has been entrusted with the responsibility for the approval of new drugs, and the conduct of clinical trials in the country, as well as laying down the standards for drugs.
- It also controls the quality of imported drugs, oversight over the SDRAs and an advisory role

in ensuring uniformity in the enforcement of the Drug Control Act.

- Applications for approval of New Drugs are evaluated by the **12 Subject Expert Committee (SEC)** (formerly referred to as New Drug Advisory Committees (NDAC)), consisting of experts usually drawn from **Government Medical Colleges and Institutes** across India.

The **Drugs and Cosmetics Act** also has **provisions to compensate the families** of victims of adulteration. It calls for the penalty to be extracted from a convicted manufacturer and given to families of the victims.

What are the challenges associated with Indian drug regulations?

- Un-justified classification of offence:** The distinction between minor and major offenses isn't scientific in India. States do not prosecute dissolution, disintegration, or impurity failures because they deem them minor offense.
- Liberal punishments:** Lack of adequate fines and punishment has made the crime of Pharma sectors more prominent.
- Competition between states to boost the Pharma sector:** As government of India has made pharma sector under innovation criteria for rankings among states has led it under a competition to establish drugs and pharma industry.
- Interstate variation in the prosecution:** The variations among the States' regulation against drug control and Quality check makes it difficult to analyse the real problem.

| Problem | Solution |
|--|---|
| <ul style="list-style-type: none"> Poor coordination, inconsistent application of law across states | <ul style="list-style-type: none"> Amend Rule 69 of D&C Act |
| <ul style="list-style-type: none"> Weak drug quality investigation system | <ul style="list-style-type: none"> Use statistical method to draw drug samples for testing |
| <ul style="list-style-type: none"> Weak prosecution of sub-standard drugmakers | <ul style="list-style-type: none"> Enforce Section 27 of D&C Act; DCC guidelines (2008) "illegal and unconstitutional" |
| <ul style="list-style-type: none"> Lack of safety norms for generic drugs sold in India | <ul style="list-style-type: none"> Make bioequivalence studies, stability testing mandatory for all generics Establish a system for nationwide withdrawal of bad batches of drugs |
| <ul style="list-style-type: none"> No proper list of sub-standard drugmakers | <ul style="list-style-type: none"> Mandate states to contribute info. to an easily searchable national database |
| <ul style="list-style-type: none"> Sub-standard drugs used in govt hospitals | <ul style="list-style-type: none"> Enact a public procurement law for uniform blacklisting norms and transparency between procuring agencies |

What are the reasons behind the lack of drug regulations in India?

- **Lack of R&D:** The Indian pharma industry faces lack of research components and real time good manufacturing practices.
 - ▶ No doubt investment (as % of sales) in research & development by Indian pharma companies increased from 5.3 per cent in FY12 to 8.5 per cent in FY18 but it is still low as compared to US counterparts that invest in R & D 15–20% of their sales.
- Compliance issues and good manufacturing practices:
 - ▶ This has somehow always been a problem for the Indian companies. The on-going rumour

is that the **United States Food and Drug Administration** are trying to block the growth of the companies.

Why is the approval of USFDA important?

- The approval of USFDA is important because the **largest consumer of pharma products** is the USA and India is a major exporter.
- The opinion of the USFDA is considered to be the standard in the sector as well.
- The companies are trying to improve their standards and this issue can be solved by having officials who are more stringent and inspections on a regular basis can be done.

PRACTICE QUESTION

1. What are the present Drug regulations in India? Describe the allegations raised by the WHO on Indian firm.
2. Discuss the process of drug regulation in India and also identify the challenges associated with Indian drug regulations.

JUDICIAL APPOINTMENTS BY THE COLLEGIUM IS QUESTIONABLE: WHY?

CONTEXT:

Recently addressing the National Cultural Diversity Summit of Asian Australian Lawyers' Association Inc., former Chief Justice of India (CJI) has made certain observations regarding 'the collegium system' which once again brought the much-debated issue of the process of judicial appointments to the fore.

◎ BACKGROUND

- The collegium system evolved out of a series of judgments of the Supreme Court that are called the "**Judges Cases**".
- The collegium came into being through the interpretations of the relevant provisions of the Constitution that the Supreme Court made in these Judges Cases.

Evolution of the System:

- **First Judges Case (1981):** It declared that the "primacy" of the CJI's (Chief Justice of India) recommendation on judicial appointments and transfers can be refused for "cogent reasons."
 - ▶ The ruling gave the Executive primacy over the Judiciary in judicial appointments for the next **12 years**.

- **Second Judges Case (1993):** SC introduced the Collegium system, holding that "**consultation**" really meant "concurrence".
 - ▶ It added that it was not the **CJI's individual opinion**, but an institutional opinion formed in consultation with the two senior-most judges in the SC.
- **Third Judges Case (1998):** SC on the President's reference (**Article 143**) expanded the Collegium to a five-member body, comprising the CJI and four of his senior-most colleagues.

What is Collegium system?

- The collegium is a group consisting of the **Chief Justice of India and the four senior-most judges** of the **Supreme Court** that decides the **appointment of judges** to the apex court.

How it works?

- The Judges of the higher judiciary are appointed only through the collegium system, and the government has a role only after names have been decided by the collegium.
- Names recommended for appointment by a **High Court collegium** reach the government only after approval by the **CJI** and the **Supreme Court collegium**.
- Sometimes the government delays making the appointments, especially in cases where the government is perceived to be unhappy with **one or more judges** recommended for appointment by the collegium.

Appointment Procedures:

| For Judges of Apex Court | For High Court CJ |
|--|--|
| <ul style="list-style-type: none"> • For other judges of the SC, the proposal is initiated by the CJI. • The CJI consults the rest of the Collegium members, as well as the senior-most judge of the court hailing from the High Court to which the recommended person belongs. • The consultees must record their opinions in writing and it should form part of the file. • The Collegium sends the recommendation to the Law Minister, who forwards it to the Prime Minister to advise the President. | <ul style="list-style-type: none"> • The Chief Justice of the High Court is appointed as per the policy of having Chief Justices from outside the respective States. • The Collegium takes the call on the elevation. • High Court judges are recommended by a Collegium comprising the CJI and two senior-most judges. • The proposal, however, is initiated by the outgoing Chief Justice of the High Court concerned in consultation with two senior-most colleagues. • The recommendation is sent to the Chief Minister, who advises the Governor to send the proposal to the Union Law Minister. |

● ANALYSIS**What is the role of Government in the judicial appointments?**

- The role of the government in this entire process is limited to **getting an inquiry** conducted by the **Intelligence Bureau (IB)** if a lawyer is to be elevated as a judge in a High Court or the Supreme Court.
- The government can also raise objections and seek clarifications regarding the collegium's choices, but if the collegium reiterates the same names, the government is bound to appoint them.

On what grounds has the collegium system been criticised?

- **On account of Transparency:** The system is non-transparent, since it does not involve any official mechanism or secretariat.
- **No definite Eligibility:** it is seen as a closed-door affair with any prescribed norms regarding eligibility criteria, or even the selection procedure.
- **Lack of Consensus and Consultation:** There is no public knowledge of how and when a collegium meets, and how it takes its decisions. There are no official minutes of collegium proceedings.

What were Attempts to reform the Appointment System?

- The attempt made to replace it by a '**National Judicial Appointments Commission**' (through Ninety-ninth Amendment Act, 2014) was struck down by the court in 2015 on the ground that it posed a threat to the independence of the judiciary.

● WAY FORWARD

- Filling up of vacancies is a **continuous and collaborative process involving the executive and the judiciary**, and there cannot be a time frame for it. However, it is time to think of a permanent, independent body to institutionalise the process with adequate safeguards to preserve the judiciary's independence guaranteeing judicial primacy but not judicial exclusivity.
- It should **ensure independence, reflect diversity, and demonstrate professional competence and integrity**.

PRACTICE QUESTION

1. Do you agree with the view that "Collegium system requires reconsideration"? Give reasons in support of your arguments.
2. The efficiency of the collegium system has been challenged several times in terms of independence and transparency of judicial appointments. Critically analyse

ELECTORAL BONDS: SC QUESTIONS THE TRANSPARENCY OF THE PROCESS

CONTEXT:

Recently, the Supreme Court's Justice B R Gavai, heading a Bench, asked the government whether the electoral bonds' system reveals the source of money pumped in to fund political parties.

What are Electoral Bonds?

- **Introduced:** In 2018
- Electoral bonds are **an instrument** through which anyone can **donate money** to political parties.
- Such bonds, which are sold in multiples of **Rs.1, 000, Rs.10, 000, Rs.1 lakh, Rs.10 lakh, and Rs.1 crore**, can be bought from authorised branches of the **State Bank of India**.
- **Objective:** to bring about transparency in electoral funding in India.
- **Process of Donation:**
 - ▶ As such, a donor is required to pay the amount — say Rs.10 lakh — via a cheque or a digital mechanism (cash is not allowed) to the authorised SBI branch.
 - ▶ The donor can then give this bond (just one, if the denomination chosen is Rs.10 lakh, or 10, if the denomination is Rs.1 lakh) to the party or parties of their choice.

How Political Parties can use these donations?

- The political parties can choose to encash such bonds within **15 days** of receiving them and fund their electoral expenses.

- On the face of it, the process ensures that the name of the donor **remains anonymous**. **The source of the donations is hence not revealed to voters.**

Why they attract Criticism?

- **Contradicting its Basic Idea:** The scheme does the exact opposite of what it was meant to do i.e. to bring transparency to election funding.
- **Possibility of Extortion:** The fact that such bonds are sold via a government-owned bank (SBI) leaves the door open for the government to know exactly who is funding its opponents.
- **A Blow to Democracy:** Political parties are exempted from disclosing donations received through electoral bonds.
- **Against Free & Fair Elections:** Electoral bonds provide no details to the citizens.

Supreme Courts' Stand:

- The Indian Supreme Court has long held that the **"right to know"**, especially in the context of elections, is an integral part of **the right to freedom of expression (Article 19)** under the Indian Constitution.
- However, the **Representation of the Peoples Act, 1951** does not contain any provisions for revealing the source of funding to the voters.

PRACTICE QUESTION

1. Critically examine the effectiveness of electoral bonds to make Indian elections more transparent.
2. What other reforms are needed to make Indian election process fairer?

SC DELIVERS SPLIT VERDICT ON KARNATAKA HIJAB BAN

CONTEXT:

The Supreme Court has delivered a split verdict on whether Muslim Girls/ students should shed their hijabs at the Educational Institutions, again igniting the debate around the Right to profess and follow their religion.

The Verdict:

- One judge affirmed that the state government is authorised to enforce uniform in schools and the

other called hijab a matter of choice that cannot be stifled by the state.

Essential religious practices mean all those practices that are fundamental to a religion and not following them would result in the change of religion itself.

Supreme Court's (SC) Previous Judgements on Hijab Case:

- As per the SC, wearing of hijab does not form a part of **essential religious practices** in Islamic faith and it is not protected under the right to freedom of religion guaranteed under **Article 25** of the Constitution of India.
- The prescription of school uniform does not violate the:
 - Right to freedom of speech and expression** under **Article 19(1) (a)**
 - Right to privacy** under **Article 21** of the Constitution
- The restriction against wearing of hijab in educational institutions is only a **reasonable restriction constitutionally permissible**, which the students cannot object to.
- The court upheld the **legality of the Karnataka Government's** order prescribing wearing of uniforms in schools and pre-university colleges under provisions of the **Karnataka Education Act, 1983**.

About Religious Freedom Protected under the Constitution:

- Article 25(1)** of the Constitution guarantees the "**freedom of conscience and the right freely to profess, practise and propagate religion**".
- It is a right that **guarantees a negative liberty** — which means that the state shall ensure that there is no interference or obstacle to exercise this freedom.
- However, like all **fundamental rights**, the **state can restrict the right for grounds of public order, decency, morality, health and other state interests**.

Key points of Consideration:

- Fundamental Rights of Girls/Students on wearing whatever they want but conditional restrictions over educational Institutions.
- Conservative mind-set of parents/families for girl child to get education. It is a Human right and cannot be seen as constraint under a practice of any religion.
- Judgements to be given for larger good and not only considering a group of people's opinion.

Divergent views

A look at what was emphasised by the two verdicts on the hijab ban

DELIVERED BY JUSTICE HEMANT GUPTA

"Secularism is applicable to all citizens, therefore, permitting one ... community to wear their religious symbols would be antithesis to secularism."

SCHOOL AND RELIGION: Religion has no meaning in a secular school run by the state. "Students are free to profess their religion and carry out religious activities other than when they're attending a classroom."

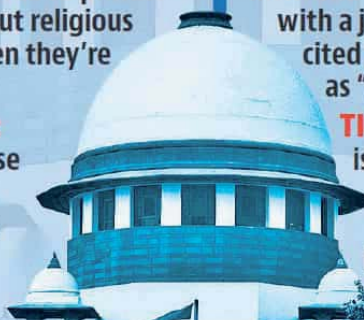
UNIFORM, EQUALITY: "... Uniform fosters a sense of 'equality' amongst students- instills a sense of oneness, diminishes individual differences..."

DELIVERED BY JUSTICE SUDHANSHU DHULIA

"Wearing hijab should be simply a matter of choice. It may or may not be a matter of essential religious practice, but it still is, a matter of conscience, belief, expression."

CLASSROOM IS DIFFERENT: Though discipline is required in educational institutions, they can't be put on par with a jail or a military camp, as was cited by HC while describing schools as "qualified public spaces"

TICKET TO EDUCATION: "If it is worn as a matter of her choice, as it may be the only way her conservative family will permit her to go to school... her hijab is her ticket to education"



| Argument in Support of the Hijab Ban | Argument against Hijab Ban |
|---|---|
| <ul style="list-style-type: none"> Hijab is not an essential religious practice and the freedom of religion can be subjected to reasonable restrictions under constitutional provisions for maintaining institutional discipline. Educational institutions can impose dress codes/uniforms prohibiting religious dress to ensure secular education. The spirit behind a dress code is of ensuring homogeneity in a classroom and obliterating the visible class or caste divide. | <ul style="list-style-type: none"> Constitutional Right - Wearing of hijab is their fundamental right. Also wearing a hijab is an expression protected under Article 19. Government has the right to restrict fundamental rights to protect the sovereignty and integrity of India, friendly relations with foreign states, public order, decency or morality, or in relation to contempt of courts. Diversity: India is a land of diversity, and the diversity in the classroom must reflect this social reality, as this helps students to know about different diverse groups and they learn to respect diversity. |

PRACTICE QUESTION

- Right to profess and practice a religion is not applicable to the Educational Institutions and Public spaces.
Comment

INDIA'S INCREASING POPULATION AND POLICY MEASURES REQUIRED TO TACKLE IT

CONTEXT:

Considering the United Nations report showing data about India would surpass China to become the most populous country by 2023, has drawn a debate over the population policy and changes to be made for curbing the future implications.

Mapping India's Population:

- India is **second most populous** country with over 1.35 billion people.
- Approximately 17.85% of the world's population are Indians, which means 1 in every 6 people on Earth live in India.
- India's population is expected to grow by 25%, with reference to 2011, to 1.52 billion by 2036.
- India's population growth rate is expected to decline to its lowest since the Independence in the 2011-2021 decade, with a decadal growth rate of 12.5%.

Current Policy (The National Population Policy, 2000)

- The **National Population Policy (NPP)**, 2000 is the central government's second population policy.
- The long-term objective is "to achieve a stable population by 2045, at a level consistent with the requirements of sustainable economic

growth, social development, and environmental protection."

Cause of Overpopulation:

- Decline in death rate**
- Agricultural advancements**
- Better medical capabilities**
- More hands to work**
- Advanced fertility treatment**
- Immigration**
- Lack of family planning/unawareness**
- Poor contraceptives use**

Areas to be focused for Sustainable development:

- Social security and universal health:** Increasing rate of old age population will demand a better welfare system along with social security and universal health care facility.

According to the **National Commission on Population**, the **share of the elderly in India's population, close to 9% in 2011, is growing fast** and may reach 18% by 2036. If India is to ensure a decent quality of life for the elderly in the near future, planning and providing for it must begin today.

- Demographic liability
- Resource allocation and Achieving SDGs
- Poverty and quality of life

PRACTICE QUESTION

1. India is projected to become the most populous country by 2027 surpassing China (UN report - 2019). Discuss the Policies and other efforts made by government in past to deal with population explosion in India.

CHINA'S WOLF-WARRIOR DIPLOMACY

CONTEXT:

With the Chinese Communist Party's (CCP's) 20th National Congress, China's position and its diplomacy with world has been discussed. It saw many changes in world affairs over the years, Xi has advocated for a more intensive approach towards handling issues both domestically and internationally.

- The "wolf warrior" style of Chinese diplomacy particularly attracted attention.

What is Wolf Warrior Diplomacy of China?

- Wolf warrior diplomacy is an aggressive style of diplomacy adopted by Chinese diplomats in the 21st century, under **Chinese leader Xi Jinping's administration**.
- It is confrontational and combative, with its proponents loudly denouncing any criticism of China on social media and in interviews.
- It is considered as 'great diplomatic philosophy' of Xi Jinping.

What is the need for wolf warrior diplomacy?

- The change in strategy has been attributed to many reasons, such as
 - ▶ Xi's more authoritarian tendencies as compared to earlier leaders
 - ▶ deteriorating US-China relations under former US President Donald Trump
 - ▶ The coronavirus pandemic-related accusations on China, etc.

How China is using this Diplomacy against India?

- **Increasing presence:** China's increasing presence and involvement in the Indian Ocean is certainly a strategic and security problem for India.

- **Naval power:** China's overall naval capabilities have exceeded India's. China is continuously developing its naval capabilities and forging partnerships with strategically located states in the Indian Ocean.
 - ▶ For example, in 2017, China established its **first offshore military base in Djibouti** that would provide it with a considerable capacity to monitor the Indian Navy's movements in the Indian Ocean.
- **Enhanced military presence:** The developments of the China-Pakistan Economic Corridor along with Gwadar Port will also provide China with an enhanced military presence in the Indian Ocean region.
- **Influence on neighbours:** With the assertive and ambitious Belt and Road Initiative and Maritime Silk Road, China has consolidated its influence over the Indian neighbours as almost all the neighbour sans Bhutan have shown the keen interests in joining.
 - ▶ Recently, Sri Lankan parliament passes controversial Bill on China-backed Colombo Port City. Hambantota Port is already under China's control.

What should be the way out for India to counter China?

- Strengthening ties with US with initiatives like QUAD

- Increase ties with India Neighbourhood like Bangladesh, Sri Lanka etc.
- Using India's Soft powers and Cultural significance with China.

PRACTICE QUESTION

1. China's foreign policy is called as Wolf warrior diplomacy. Discuss how India is impacted by this policy taking in light the India-China relations.

CYBER-ATTACK BECOMES A NEW WEAPON FOR THE MODERN WORLD

CONTEXT:

With the evolving world, Cyber threat has become one of the most emergent issues which are now seen as 'Grey Zones Operations ' and creates a threat as it is weaponised by the countries.

Grey-zone Operations:

- 'Grey Zone Operations' can be broadly defined as the exploitation of operational space between peace and war to change the **status quo** through the use of coercive actions which remain below a threshold that, in most cases, would prompt a conventional military response.



What is Cyber-security?

- **Cyber security** is concerned with making cyberspace safe from threats, namely **cyber-threats**.
- The notion of "cyber-threats" implies the malicious use of **information and communication**

technologies (ICT) either as a target or as a tool by a wide range of malevolent actors.

Challenges of Cyber Security:

Weapons used: Cybercriminals will use any internet-connected device as a weapon, a target or both, and SMBs tend to deploy less sophisticated cyber security measures.

- Malware attack
- Ransomware
- Trojan
- Password attack
- Ransomware
- DDoS etc.

- **Digital Data Threat**
- **Supply Chain Inter-connection**
- **Hacking**
- **State-sponsored cyber-attacks**

Sectors those are vulnerable:

- The most targeted sectors: health care, education and research, communications and governments.

Few instances of using Cyberspace as a Weapon:

| Arguments in favour | Arguments against |
|--|--|
| <ul style="list-style-type: none"> For Instance, it has been argued that it was radically not wrong to use cyber space as a weapon in case of Russia-Ukraine conflict. In this case, Cyber space has become an experiment for various players to try and support a weaker nation against a more information and communication flows, which are considered essential to the success or failure of any war strategy. | <ul style="list-style-type: none"> Facebook's manipulation of personal data. It is evident that the cyber realm is no longer confined to events such as the Russia-Ukraine war and the battle is now in our own backyards, with several non-state actors engaging in hybrid warfare and distorting day-to-day practices, including examinations. These pose legal, ethical and real dilemmas. Left unchecked. |

PRACTICE QUESTION

- Discuss various threats and challenges to cyber-security in India. What initiatives are being taken by the government to enhance cyber-security in India?
- Most of the countries are using Cyber space as a weapon in modern world. Discuss

GLOBAL INNOVATION INDEX, 2022

CONTEXT:

The World Intellectual Property Organization (WIPO) recently released the Global Innovation Index (GII) 2022 in which Switzerland has emerged as the world's most innovative economy for the 12th consecutive year.

◎ ABOUT

Key highlights of Global Innovation Index (GII) 2022:

- Moving into **its 15th edition in 2022**, the Global Innovation Index has been a leading reference for measuring an economy's innovation performance.
- A large number of countries use the GI to assess and improve their innovation ecosystems and use the GI as a reference in economic plans and/or policies.
- India secured the 40th position** in the Global Innovation Index. Last year, India was at the **46th** position.
- The index shows that emerging economies including, **India and Turkey**, are showing consistently strong performance.
- This edition's thematic focus on the future of innovation-driven growth provides a stance on whether stagnation and low productivity growth are here to stay, or whether we are about to enter a new era, where new innovation spurts - the Digital Age and the Deep Science Innovation waves - bring about an economic uplift.

- Switzerland** is the most innovative economy in the world in 2022 - for the 12th year in a row - followed by the United States, Sweden, the United Kingdom and the Netherlands.
- China** is nearing the top 10 while Turkey and India enter the **top 40** for the first time.

About Global Innovation Index (GII):

- It is an annual ranking of countries by their capacity for, and success in innovation.
- It is published by **Cornell University**, INSEAD, and the World Intellectual Property Organization, in partnership with other organisations and institutions.
- The overall GI score** is the simple average of the **Input** and **Output** Sub-Index scores.
- The Innovation Input Sub- Index** is comprised of five input pillars that capture elements of the national economy that enable innovative activities:
 - Institutions, Human capital and research, Infrastructure, Market sophistication, and Business sophistication.

- **The Innovation Output Sub- Index** provides information about outputs that are the results of innovative activities within the economy. There are two output pillars:
 - Knowledge and technology outputs and Creative outputs.

● ANALYSIS

What is the realistic potential of India's Innovation ecosystem?

- The Indian innovation system is very multifaceted in terms of user segments and income gaps. However, central government is trying to boost innovation in the country through several schemes.
- Innovation in India is being planned around the triangle of collaboration, facilitation and responsible regulation. It is advanced by cross-disciplinary collaboration.
- India is the **fastest growing country** in terms of Internet usage, with over 700 million users and the number projected to rise to 974 million by 2025.
- The JAM (Jan Dhan, Aadhaar, and Mobile) trinity has 404 million Jan Dhan bank accounts with 1.2 billion Aadhaar and 1.2 billion mobile subscribers.

Recent Initiatives of Government of India to boost innovation

- **Vaishvik Bharatiya Vaigyanik (VAIBHAV) summit:** Numerous overseas Indian-origin academicians and Indians participated to form ideas on innovative solutions to several challenges.
- **Responsible AI for Social Empowerment (RAISE) 2020 summit:** It grants a course to efficiently use AI for social empowerment, inclusion, and transformation in key sectors such as health care, agriculture, finance, education and smart mobility.
- **Smart India Hackathons (SIH):** To provide students a platform to solve some of pressing problems of society.
- **Atal Innovation Mission (AIM):** To promote innovation and entrepreneurship across India.
- **Biotechnology Ignition Grant (BIG) scheme:** Largest early stage biotech funding programme in India. Aims to encourage researchers to take bio-technology closer to market through a start-up.

PRACTICE QUESTION

1. Discuss the role of new start-ups that are helping to create new jobs and improving India's rank in the Global Innovation Index.
2. Examine the role played by the Indian entrepreneurs in the country to become a \$5 trillion economy?

ONLINE GAMING MARKET IN INDIA, AND PROPOSED RULES

CONTEXT:

A task force set up by the Ministry of Electronics and Information Technology (MeitY) has prepared a final report of its recommendations to regulate the online gaming industry in India.

● BACKGROUND:

- Online gaming has flourished during the pandemic. The average time spent on online gaming has gone up almost 65% from pre-Covid levels.
- India currently has **no comprehensive legislation** with regards to the legality of online gaming or boundaries that specify applicable tax rates within the betting and gambling industry.
- In this regards a task force was mandated to study global best practices and recommend a regime

for a uniform regulatory mechanism for online gaming.

Online Gaming Market in India:

- **Market growth:** The online gaming industry in India grew at a compounded annual growth rate (CAGR) of 38% between 2017-2020, as opposed to 8% in China and 10% in the US.
- **New user base:** India's percentage of new paying users (NPU) in gaming has been the fastest growing in the world for two consecutive years, at

40% in 2020 and 50% in 2021.

- **Revenue generation:** The revenue of the Indian mobile gaming industry is expected to reach \$5 billion in 2025.

Recommendations of Task Force:

- **A Central-Level Law:** A central-level law should apply to real money and free games of skill, including e-sports, online fantasy sports contests, and card games among others.
 - ▶ Casual games with no real money element in the form of stakes may be kept outside the scope of such rules. Unless they have a high number of users in India, or permit the publication or transmission of information in the nature of any inappropriate content like violence, nudity, addictive content or misleading content.
- **Dispute Resolution:** A **three-tier dispute resolution mechanism**, similar to that prescribed under the Information Technology Rules, 2021 for online streaming services, consisting of:
 - ▶ A grievance redressal system at the gaming platform level,
 - ▶ Self-regulatory body of the industry, and
 - ▶ An oversight committee led by the government.
- **Formation of a Regulatory Body:** This body will determine what qualifies as a game of skill or chance, and accordingly certify different gaming formats, seek compliance and enforcement.

- **Online Gaming platform Mechanism as a legal entity:** Any online gaming platform – **domestic or foreign**– offering real money online games to Indian users will need to be a legal entity incorporated under Indian law.
 - ▶ These platforms will also be treated as 'reporting entities' under the **Prevention of Money Laundering Act, 2002**.
- They will be required to report suspicious transactions to the **Financial Intelligence Unit-India**.
- **Nodal Ministries: MeitY may act as the nodal ministry** to regulate online gaming, **except for the e-sports category** on which the Department of Sports can take the lead.
 - ▶ Certain other aspects of online gaming such as advertisements, code of ethics relating to content classifications etc. could be regulated by the **Information and Broadcasting Ministry**.
 - ▶ The **Consumer Affairs Ministry** can regulate the sector for unfair trade practices.

Arguments in support to Ban Online Gaming:

- They are **addictive in nature**, and when **leads to depression, mounting debts and suicides played with monetary stakes**.
- Earlier, the World Health Organisation (WHO) had announced a plan to include **"gaming disorder"** as a mental health condition.

PRACTICE QUESTION

1. Describe how India's online gaming sector is harming young people's potential and that immediate need for regulation.
2. Analyse the growth of the online gaming industry in India and how it has influenced new start-ups and society.

INDIA'S SPACE ECONOMY

CONTEXT:

According to the report titled '*Developing the Space Ecosystem in India: Focusing on Inclusive Growth*', India's space economy was pegged at \$9.6 billion in 2020 and is expected to touch \$12.8 billion by 2025.

What does Space Economy mean?

- Space Economy can be understood as **the full range of activities and the use of resources that create value and benefits to human beings in the course of exploring, researching, understanding, managing, and utilising space**.

New Space Economy 2022 represents an innovative approach to the Space Sector under multiple aspects, such as the number and typology of the main players and investors, the space application, its economic impact, old objectives linked to science and the Space Race.

What is likely to spur the market forward?

- Increased demand for small satellites
- Increase in demand for military and defense satellite communication solutions
- Setting-up space parks across the country will be key to attracting global start-ups working in the space sector.

How India is going to achieve the estimated targets?

- By increasing its Indigenous manufacturing of Satellites and Space objects.
- By Inclusion of Private players in the field of Space.
- By attracting global start-ups working in the space sector and help to incubate space tech companies in India.

Do you know?

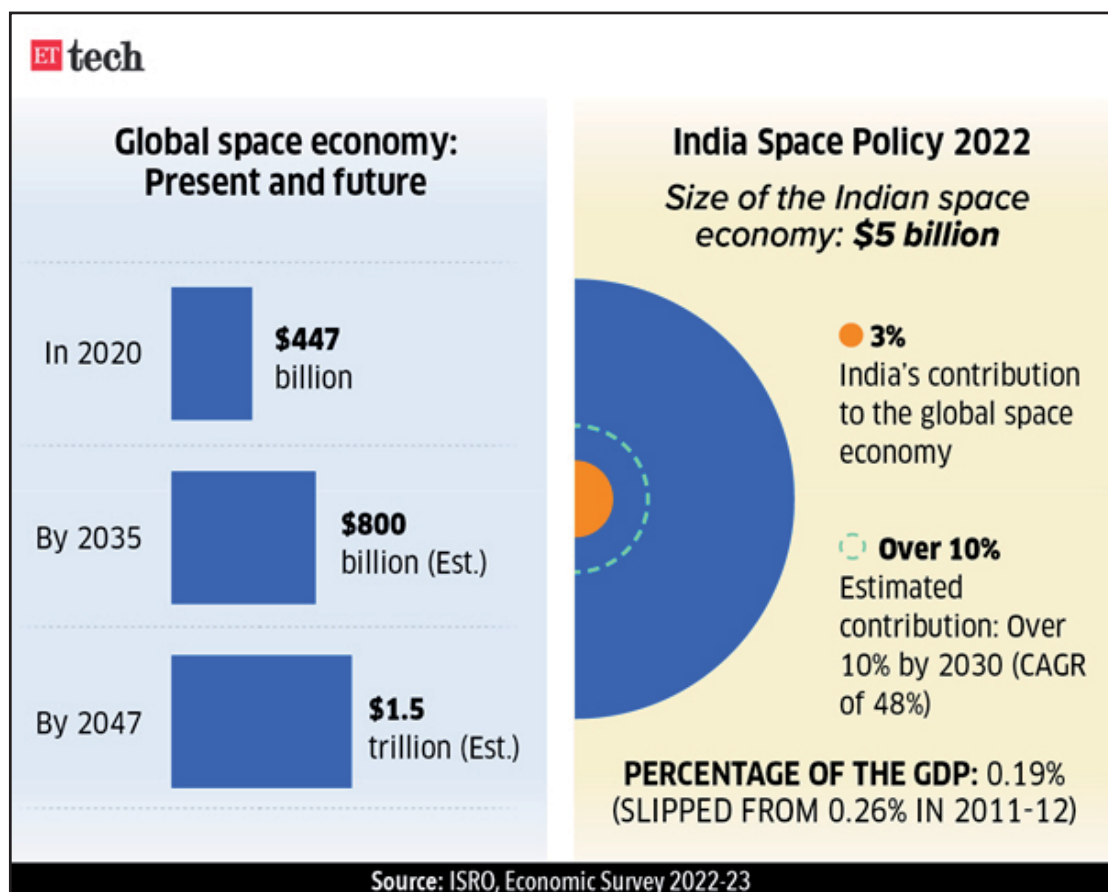
India has of over **100 space tech start-ups** with investments in the segment touching **\$68 million** in 2021.

Recent Government Initiatives:

- **Privatisation:** The government opened up the space sector to private sector players.
- **IN-SPACe & ISpA:** In 2020, the government announced the formation of the **Indian National Space Promotion and Authorisation Centre** (IN-SPACe) and the Indian Space Association (ISpA).
- **Updated Policies:** The government recently updated the **SpaceCom** and **SpaceRS policies**, liberalizing the traditional satellite communication and remote sensing sectors.
- **New Drone Rules:** The government also released new rules for drones as well as guidelines for acquiring and producing geospatial data.
- **Registration for space objects:** The national registration mechanism for space objects has been implemented, with five satellites registered. A total of six memorandums of understanding have been signed with private or academic entities for sharing technical expertise and facilities.

What further measures are required?

- A comprehensive policy for the space sector
- Introduction of production linked incentive (PLI) scheme
- Promotion of independent launch solutions for private sector satellites



PRACTICE QUESTION

1. How would you define the India's Space Economy? Describe how it will contribute to India being a \$5 trillion economy.
2. Are investments in Indian space tech start-ups growing? Describe the contribution of indigenous technologies to India's space program

TOKENIZATION AND PREVENTION OF ONLINE CARD FRAUD

CONTEXT:

The Reserve Bank of India (RBI) has mandated the tokenization of credit/debit cards for online merchants from October 1st, 2022.

What is tokenization?

- Tokenization refers to the **process of replacement of actual card details** with a unique alternate code known as the 'token', which shall be unique for a combination of card, token requestor, and identified device.
 - A tokenized card transaction is considered safer as the actual card details are not shared with the merchant during transaction processing.
 - Customers who do not have the tokenization facility, will have to key in their name, **16-digit card number**, expiry date, and CVV each time they order something online.

- As of now, about 19.5 crore tokens have been created. Opting for **Card-on-File Tokenization (CoFT) services**, (creating tokens) is voluntary for cardholders.

- Reserve Bank of India (RBI)** has permitted authorized card payment networks to offer card tokenization services to consumers requesting it, in an effort to improve the safety and security of card transactions.

What is the new guidelines say on functioning Of Online Transactions?

- From 1st October 2022, merchants will not be

What should a cardholder do under tokenization?

allowed to store your card numbers, CVV, and expiry date for processing online transactions unless the card number is tokenized.

- Any existing details that were saved by merchants will be deleted.

What is Card-on-File (CoF)?

- A CoF transaction is a transaction where a cardholder has authorized a merchant to store the cardholder's **Mastercard or Visa** payment details.
- The cardholder then authorizes that same merchant to bill the cardholder's stored Mastercard or Visa account.
- E-commerce companies and airlines and supermarket chains normally store card details.

Issues

- Risk of misuse:** Many entities involved in an online card transaction chain store card data like

card number and expiry date **Card-on-File (CoF)** for undertaking transactions in the future.

- While this practice does render convenience, the availability of card details with multiple entities increases the risk of card data being stolen or misused.
- Within India as well, social engineering techniques can be employed to perpetrate fraud using such data.

What are the benefits of tokenization?

- Less sharing of Personal Data**
- Ensure Safe transactions**
- Tokenization reduces risk from data breaches**
- Tokenization means less red tape for businesses**

What are the cases (instances/scenarios) for which tokenization have been allowed?

- Tokenization has been allowed through mobile phones and/or tablets for all use cases/channels (e.g., contactless card transactions, payments through QR codes, apps, etc.)

PRACTICE QUESTION

- What is tokenisation and why has RBI issued new guidelines?

MUSHROOMING COMMUNITY RESERVES IN NORTH-EAST AND THE 'CONCERN'

CONTEXT:

The increasing growth of 'community reserves' in the north-east poses various challenges to the local residents (lack of livelihood options), as the land goes from being governed by local village councils to coming under the forest department.

◎ BACKGROUND

- India's North East has seen a mushrooming of 'community reserves' in the last 11 years.
- A community reserve is usually formed by the local village council and the forest department signing a memorandum of understanding (MoU).
- Provisions of the **Wild Life (Protection) Act** apply to an area once it becomes a community reserve.

What exactly are Community Reserves?

- The **Ministry of Environment, Forests and Climate Change (MoEFCC)** defines conservation reserves and community reserves as "protected areas of India which typically act as buffer zones to or connectors and migration corridors between established national parks, wildlife sanctuaries and reserved and protected forests of India."
- Authorised by:** The State Government may designate any community land or private land

as a Community Reserve if the members of that community or individuals involved agree to offer such areas for the protection of **fauna and flora**, as well as their **traditions, cultures, and practices**.

- The designation of such an area aims to improve the socio-economic conditions of the people who live in such areas while also conserving wildlife.

Why declaring community reserve is a matter of concern in Northeast?

- The village council members who agree to sign the MoU are **mostly illiterate** and do not understand the finer details.
- Most of the **community members are not aware** of this policy in its entirety.
- Communities were **unaware that provisions of the Indian Wildlife Protection Act become functional in an area** once it became a community reserve.
- **After a forest has been made into a community reserve, people cannot hunt there, nor can they use it for agricultural practices, or engage in jhum cultivation.**
- It is also unclear whether traditional owners of community forests qualify for compensation in such a case as they do not necessarily have the claim papers.

Provisions related to Conservation:

- **Community reserves fall under protected areas**, along with marine protected areas, national parks, wildlife sanctuaries, and conservation reserves, according to the **Wild Life (Protection) Act (WLPA), 1972**.
- Conservation reserves and community reserves are protected areas of India that typically act as **buffer zones** between established national parks, wildlife sanctuaries, and reserved and protected forests of India, according to the Union Ministry of Environment, Forests and Climate change (MoEFCC).
- A **Community Reserve Management Committee** oversees the Reserve.
- Where a community or an individual has volunteered to conserve wildlife and its habitat, the State Government may declare the area as **community land by notification**.

- There shall be **no change in land use pattern** within the Community Reserve unless authorized by a resolution passed by the Management Committee and approved by the State Government.

Dilemma with Legal provisions for 'Forest lands':

- Due to the lack of clarity with declaration of area as a community reserves, the following dilemmas can be seen:
- **CFR under FRA:** The Act allows for a greater role and empowerment of Gram sabhas³ in determining claims, managing forests that they have conserving traditionally, checking processes destructive of forest dwellers' habitats and protecting traditional knowledge.
- It also allows for greater livelihood security for traditional forest dwellers that have been unjustly denied tenure, and mandates that the consent of the community is necessary for any displacement and relocation.
- However, this Act has an unclear relationship with existing forest and wildlife laws. The institutional arrangements for enforcement of the forest management and conservation provisions of the Act are also not very clear especially in relation to the areas where the forest department has existing jurisdiction.

| Benefits of Community reserves | Challenges associated |
|---|---|
| <ul style="list-style-type: none"> • It conserves the species and its habitat • Useful in conserving large populations of a species • It is a less disruptive method of conservation • It is a cost-efficient conservation method | <ul style="list-style-type: none"> • Occurrence in marginal habitats • General distribution pattern (widespread, dis-junction populations, narrow localised species, meta populations) –which will affect the genetic architecture and the amount of variation • Lack of regular survey in in-situ conservation • Only Priority species are focused |

PRACTICE QUESTION

1. What exactly are "Mushrooming Community Reserves"? Describe the issues that this community is posing to the locals in India's North-Eastern states.
2. The increasing growth of 'community reserves' in the north-eastern state of India is a concern. Why?

NEED OF LEGAL RIGHTS TO ANIMALS, TREES, AND RIVERS

CONTEXT:

The report for the Law Society explores the scope of recalibrating the relationship between humans and mother earth in the future.

About the Report:

- The report is titled as "**Law in the Emerging Bio-Age**" by the Law Society (an independent professional body for solicitors in England and Wales).
- The subsequent report concluded that the evolution of this relationship demands new regulations, **including rights for non-humans**.

Key Questions raised in the report:

- Role of legal structure in improving human relations with living systems and our planet.
- Role of law in supporting the evolution of ethics in the capacity to manipulate living systems.
- Outcomes of granting rights to non-human life forms.
- Articulating legal frameworks to make them fit for the future.
- Legal Practitioner for the bio age.

Why it is necessary to grant nature rights?

- **Need to protect nature** — animals, plants, rivers, and beyond — because their existence is more than sustaining human lives. It is the holistic recognition that all life and all ecosystems on our planet are deeply inter-wined.
- **Nature has an intrinsic right to exist** free of harm, regardless of the value, it provides humans.
- **Impact of anthropogenic activities:** Impacts from human activity on land and in the water, is influencing nature.
 - Climate change, ocean acidification, permafrost melting, habitat loss, eutrophication, storm water runoff, air pollution, and contaminants are a few examples calling for attention.

Do you know?

- **Ecuador was the first to recognize the rights of nature.** Article 71 begins: "Nature, where life is reproduced and occurs, has the right to integral respect for its existence."

- **Bolivia** adopted a bio-centric approach through the Law on the **Rights of Mother Earth (2010)**; the enumerated rights are the rights to life, diversity of life, water, clean air, equilibrium, restoration, and pollution-free living.
- There is also a campaign to make **ecocide a prosecutable offense** at the international criminal court (ICJ), Hague.

Need to give non-human entities rights:

- **To tackle climate breakdown and biodiversity loss**, countries need to provide the 'rights' to the neglected elements of nature.
- **Something very different has to be done** to leave this planet more survivable to future generations.
- It means **granting legal rights and protections to non-human entities** such as animals, trees, and rivers are essential.
- Human makes up a fraction of this global ecosystem, and an **evolving legal framework** suited for the future requires **assigning rights to non-human entities**.

Existence of Nonhuman Rights:

- **Rights of Nature:** The concept of nature is not currently understood to include individual animals. But the provisions recognizing the **rights of nature** still implicitly acknowledge that a nonhuman can have rights.
 - It is also important to understand that, theoretically, the rights of nature may be violated even in the absence of any injury to humans.
- **Judicial Recognition:** Rivers have been treated as legal persons in some jurisdictions, notably in Bangladesh, Colombia, Ecuador, India, New Zealand, and the United States.
 - A **landmark judgment of the Uttarakhand High Court (UHC)**, has extended the **legal personhood** to the Ganga, the Yamuna, their tributaries, and all other natural objects.
 - In another case, the High court of Punjab and

Haryana recognized all animals in the animal kingdom, including avian and aquatic species, as legal entities.

- **Banning Jallikattu Practice:** The Supreme Court order of 2014 bans jallikattu, because traditional sports involved the taming or overpowering of bulls.

Constitutional Provisions:

- **Article 51-A** of the Constitution of India states that it is the fundamental duty of all citizens to have compassion for living creatures.
- **Article 48-A** of the constitution of India requires the State to protect and improve the environment and to safeguard the forests and wildlife of the country.

- At **local and village level**, Panchayats have been empowered under the constitution to take measures such as soil conservation, water management, forestry and protection of the environment and promotion of ecological aspect.

New Legal Framework:

- **Inclusive Framework:** We need a framework that is more eco-centric than anthropocentric.
- **Ethical questions:**
 - Ethics of bringing back species from extinction or eradicating existing ones.
 - Wiping out mosquitoes, which carry malaria and other diseases.
 - Calves are taken away from their mothers and even pets.

PRACTICE QUESTION

1. Why are nations like Bolivia and New Zealand giving legal protection to the natural world? Describe the Indian environmental protection legislation in this regard.
2. Analyse the current state of the global environment. Explain why it is urgently necessary to introduce legislation in this regard.

ORGANIC FERTILISER IN AGRICULTURE AND WAY TO SUSTAINABLE FUTURE

CONTEXT:

With the fact that India has become one of the fastest growing economies of the World, it has invested in almost all sectors including the Organic fertilizers. India has a huge potential of Organic fertilisers and can edge in the field than other developing Countries.

- So, let us see what India's potential is and how it can help it to grow sustainable future in Agriculture.

◎ ABOUT

What are Organic Fertilizers?

- **Organic fertilizers** are fertilizers that are naturally produced. Fertilizers are materials that can be added to soil or plants, in order to provide nutrients and sustain growth.
- Typical organic fertilizers include all animal waste including meat processing waste, manure, slurry, and guano; plus plant based fertilizers such as compost; and bio-solids.
- Inorganic "organic fertilizers" include minerals and ash.

- **For Example:** The main organic fertilizers are, peat, animal wastes, plant wastes from agriculture, and treated sewage sludge.

Types of Organic Fertilizers:

- Organic fertiliser can be categorised into **two segments**, according to government rules:
 - **Bio-fertiliser:** Bio-fertilisers are composed of living microorganisms attached to solid or liquid carriers and are useful for cultivable land, as these micro-organisms help in increasing the productivity of soil and / or crops.
 - **Organic manure:** It refers to partially decomposed organic matter like digestate from

biogas plant, compost and vermin compost, which provides nutrients to the soil / crops and improves yield.

India's potential:

- India produces more than **150,000 tonnes** of municipal solid waste (MSW), based on estimated MSW generation data from the National Solid Waste Association of India and the Central Pollution Control Board.
- Considering collection efficiency of **80 per cent** and organic part of MSW to be **50 per cent**, total organic waste generated per day in India comes to around **65,000 tonnes per day**.
- Even if half of this is diverted to the **biogas industry**, the government can leverage this by reduction in import of **fossils and fertilisers**.
- Biogas / gobar gas plants** can produce biogas and also organic fertilisers.
- There is also great value in the organic fertiliser also known as digestate, which is the biogas plant's effluent.
- Biogas can be utilised for heating, electricity and even vehicular purposes (after upgrading), whereas digestate can help realise the vision to have a **second green revolution**.

| Benefits of Organic fertilizers | Challenges associated |
|---|--|
| <ul style="list-style-type: none"> Boost both nutrient efficiency and organic matter content in the soil; nurture the soil with organic matter that reduces dependency on chemical inputs; restore and maintain soil fertility to nurture plant growth; enhance the biological activity and biodiversity of soils; enhance the quality attributes of produce as well as yield; | <ul style="list-style-type: none"> Organic food is more expensive because farmers do not get as much out of their land as conventional farmers do. Production costs are higher because farmers need more workers. Marketing and distribution is not efficient because organic fertilizers can be produced in smaller amounts as required. |

| | |
|--|---|
| <ul style="list-style-type: none"> improve the efficiency of nutrient use to produce more robust crops; facilitate the slow release of nutrients in response to the dynamic needs of plants; boost the efficiency of water use to render crops more resilient and drought-resistant; Reduce the impact of farming and safeguard ecosystems by minimizing leaching. Enhance crop resistance to erosion by improving the soil's organic matter content. Improve the efficiency of resource use by incorporating natural raw materials. | <ul style="list-style-type: none"> Organic farmers do not have sufficient knowledge and skills about localized soil systems, meteorology, ecology, and other factors that influence crop growth. Without the proper knowledge, an individual organic farmer will be unable to protect his crop in critical stages that may arise while farming processes. The crops are easily susceptible to illness that may slow down production. Organic farms have to go through tough certification processes. |
|--|---|

How do organic-based fertilizers contribute to sustainability?

- Smart growth** – for an economy based on research, knowledge and innovation.
- Sustainable growth** – for a resource-efficient, greener and more competitive economy.
- Inclusive growth** – for a high-employment economy with social and territorial cohesion.
- The organic-based fertilizers industry generates local employment opportunities and regional economic development across both rural and urban areas, nurturing more vibrant manufacturing and farming communities.

PRACTICE QUESTION

- What is India's current status in terms of producing organic fertiliser? Describe the potential effects of organic fertiliser on India's agricultural sector.
- Describe how Indian organic farmers are helpful in reducing the country's global emissions?

BALANCING CLIMATE CHANGE AND GLOBAL NUTRITION

CONTEXT:

It is high time for India to develop technologies that not only fulfil food and nutritional needs but also addresses climate change.

How climate change impacts nutrition?

- Climate change, agriculture and nutrition are intrinsically linked. Climate change impacts under-nutrition via following major pathways:
 - Degraded quality of foods consumed
 - Affected household food security
 - Food availability, costs, and overall calorie consumption
 - Affected agricultural yields, nutritional quality of crops
 - Environmental health and access to health services

How has the situation changed?

- The global population in 1945 was a little less than 2.5 billion and was increasing at an annual rate of about 1.9 percent per annum.
- Today, there are almost 8 billion people on this planet, and there is ample food to feed them.
- Access to food at affordable prices, however, remains a challenge for a substantial segment of humanity.

Role of Science and Technology:

- The world is able to produce so much food that the entire global population can be fed.
- This speaks of the success of science and innovations in the agri-food space.
- Countries that are guided by scientific knowledge and the spirit of innovation, instead of ideologies and dogmas, have produced ample food, even in deserts. For example, Israel.

| Challenge/ Problem | Examples of science, technology, and innovation |
|------------------------|--|
| Biotic stresses | <ul style="list-style-type: none"> • Disease- or pest-resistant crops • Pest-resistant eggplant • Rust-resistant wheat varieties • Pesticides, Herbicides • Tilling machines • Spatial repellent for on-farm pests |

| | |
|--|---|
| | <ul style="list-style-type: none"> • Improved agronomic practices (for example, push-pull mechanisms) |
| Abiotic stresses | <ul style="list-style-type: none"> • Salt-tolerant crops (for example, quinoa, potato) • Climate-resistant crops |
| Improving crop productivity | <ul style="list-style-type: none"> • Conventional breeding • Tissue culture and micro-propagation • Marker-assisted breeding • Advanced genetic engineering • Low-cost diagnostic toolkit for extension workers |
| Improving livestock agriculture | <ul style="list-style-type: none"> • High-nutrient, low-cost animal fodder • Liquid nitrogen and low-cost alternatives for animal semen preservation • Low-cost diagnostic toolkits for livestock veterinarians • Tissue engineering for laboratory-grown animal products • Low-cost veterinary pharmaceuticals |
| Lack of water availability | <ul style="list-style-type: none"> • Water storage technologies (subsurface water technologies, aquifers, ponds, tanks, low-cost plastic water tanks, natural wetlands, reservoirs) • Canal irrigation • Micro-irrigation technologies, drip irrigation, bubbler irrigation, microsprinkler irrigation • Water lifting (hand-powered mechanical pumps, treadle pumps, solarpower irrigation pumps, hydrogen-powered pumps, electric and fossil fuel pumps) • Planting technology for increased water efficiency • Rainwater harvesting mechanisms |

| | |
|-------------|---|
| | <ul style="list-style-type: none"> Conservation agriculture, Portable sensors for groundwater detection |
| Soil | <ul style="list-style-type: none"> Synthetic and organic fertilizers Zero or conservation tillage Soil microorganisms Natural nitrogen fixation |

World Food Prize:

- The World Food Prize is given every year on October 16 in a special ceremony in Des Moines, Iowa.
- Indians including **M S Swaminathan, Verghese Kurien, Gurdev Khush, and Rattan Lal** have been recipients of the prize.

Food security and Indian past:

- Two successive droughts** in the mid-1960s brought the country literally to its knees for meeting the basic food requirement of its people.
- India was forced to rely on **PL 480 food aid from the USA** and had to live from "ship to mouth".
- India soon realized such high dependence on others for food could lead to political compromises.

High-yielding varieties (HYV) of wheat:

- High-yielding varieties (HYV) of wheat by Normal Borlaug and his team in CIMMYT, and Henry Beachell and Gurdev Khush in rice at IRRI.
- Normal Borlaug received the Nobel Prize for peace in 1970.
- Borlaug envisioned setting up the World Food Prize, somewhat equivalent to the Noble Prize for Agriculture.

The path towards self-reliant in food:

- There seems to be a lack of sync between policies and technologies.
- India needs to double or even triple its expenditure on agri-research.
- This needs to go up preferably between 1.5 to 2 percent of the agri-GDP.
- Climate smart food systems that engage producer and consumer decision making, which
 - improves production of food
 - minimizes losses
 - reduces green-house gas emissions from agriculture
 - implements adaptation strategies for the most vulnerable

PRACTICE QUESTION

- Developments in food systems must be seen from the prism of climate change. Elucidate the statements using Global Initiatives for food security and climate change.

5G TECHNOLOGY LAUNCHED IN ITS FULL PACE IN INDIA

CONTEXT:

The Fifth Generation or 5G telecom services are set to be rolled out in selected cities in India this month by the end of 2022.

◎ BACKGROUND

- In 2018, India had planned to start 5G services, on par with the global players, as soon as possible, with an aim to capitalize on the better network speeds and strength that the technology promised.
- However, the lack of flow of cash and adequate capital remained hurdles in the way.

◎ ABOUT

What is fifth-generation network?

- The fifth-generation is the latest upgrade in the **long-term evolution (LTE)** mobile broadband networks.
- The revolutionary features of 5G are:**

- ▶ Ultra-low latency
- ▶ Super bandwidth per unit area
- ▶ Reliable connectivity
- ▶ Up to 100 per cent coverage
- ▶ Capacity to connect more devices per unit
- While 4G was a great leap forward, allowing people to stream music and video on the go, 5G is designed to connect many more types of devices than smartphones and offers far higher speed and capacity.
- 5G mainly works in **3 bands**, namely **low, mid and high** frequency spectrum — all of which have their own uses as well as limitations.

The evolution of 5G:

The previous generations of mobile networks are 1G, 2G, 3G, and 4G.

- **First generation - 1G**
 - ▶ 1980s: 1G delivered analog voice.
- **Second generation - 2G**
 - ▶ Early 1990s: 2G introduced digital voice (e.g. CDMA- Code Division Multiple Access).
- **Third generation - 3G**
 - ▶ Early 2000s: 3G brought mobile data (e.g. CDMA2000)
- **Fourth generation - 4G LTE**
 - ▶ **2010s:** 4G LTE ushered in the era of mobile broadband.

Significance of the Initiative:

- **Enhanced Mobile Broadband:** In addition to making our smartphones better, 5G mobile

technology can usher in new immersive experiences such as Virtual reality (VR) and Augmented Reality (AR) with faster, more uniform data rates, lower latency, and lower cost-per-bit.

- **Mission-Critical Communications:** 5G can enable new services that can transform industries with ultra-reliable, available, low-latency links like remote control of critical infrastructure, vehicles, and medical procedures.
- **Massive Internet of Things:** 5G is meant to seamlessly connect a massive number of embedded sensors in virtually everything through the ability to scale down in data rates, power, and mobility—providing extremely lean and low-cost connectivity solutions.

◎ ANALYSIS

What are the benefits of 5G?

- **Faster connectivity**
- **Socio-economic multiplier for the Indian economy.**
- **Improving tech system of industries**
- **Strengthened healthcare system**
- **Support to new-age technologies**

What are the bottlenecks?

- **Obsolete technology**
- **Low fibre footprint**
- **Restricted range**
- **Lack of finance**

PRACTICE QUESTION

1. Discuss how 5G technology would contribute to the social as well as economic development of the country.
2. Explain the current state of India's telecommunications industry and how it is encouraging new IT start-ups.

SECTION: B
(CONTEMPORARY ISSUES
BASED ESSAY)

THE TIME TO REPAIR A ROOF IS WHEN THE SUN IS SHINING

The right way to live life is to prepare yourself for the odds before it knocks on your door. The time to repair a roof is when the sun is shining revealing these secrets. This means that the right time to use our efficiency is when there is a conducive situation rather than when it all get worsen. If we have the savings for our health, education and other expenditures then the impact of circumstances like the Covid-19 will be managed more precisely. India could handle well the Covid -19 pandemic due to its early investments in the health infrastructure. India had to reflect on its plight on a number of instances when times were tough. However, it is a truth which has proved itself under many instances.

We can see this from one of the most prevalent evidences where in 4th Century BC, the Nanda Dynasty was most powerful but has engulfed the society in an exploitative regime for common people by imposing heavy taxes. It was the Kautilya who managed to change the sorrows of people to happiness when the Mauryan empire started by Chandragupta. This is an instance where the right time was awaited by Kautilya to encounter the exploitation of Nandas.

The economic history of India demonstrates that there have been several situations where tough circumstances have prompted India to weigh its alternatives. Independence sparked ideas of social, political, and economic freedom. The Indian government made the choice to build India's future on the strength of its heavy industry. In 1950, India formed the Planning Commission to supervise all facets of planning, including resource allocation, implementation of the five-year plan, and plan review. The Indian economy has experienced numerous ups and downs during the past seven decades. The years of economic crisis in 1966, 1981, and 1991, as well as India's recovery from the crisis as the world's fastest-growing major economy, are among the significant turning points in India's economic history. The only way to prevent the recurrence of similar crises, India has to work diligently to restore its roof when the sun is shining.

When India became independent in 1947, the colonial military of British India became the armed forces of independent India. The Indian Military was split equally between India and Pakistan as a result of the division of India. After World War II, a substantial demobilization campaign resulted in the discharge of the vast majority of the 1.25 million wartime troops and the dissolution of their regiments. Three wars between India and Pakistan 1947–1948, 1965, and 1971 were huge setbacks for India's security. During these set back India fought very precisely and when the war was over the introspection revealed that the army should be modernized and enlarged. India appears to be modernizing its nuclear and military capabilities. Nuclear deterrence and no first attack are India's publicly stated policies. However, as seen by its modernization efforts, particularly its ballistic missile program, India is eager to bring all of China within

striking range. India's nuclear arsenal is the seventh largest in the world. These are the few steps India is doing to fix its roof so it can protect itself from any external aggression or war.

The Indian Constitution's Preamble, Fundamental Rights, Fundamental Duties, and Directive Principles all explicitly state the importance of gender equality. In addition to guaranteeing women's equality, the Constitution gives the State the authority to implement policies that positively discriminate in favor of women. Great social reformers in the past, such as Raja Ram Mohan Roy, Swami Vivekananda, Acharya Vinobha Bhave, and Ishwar Chandra Vidyasagar, among others, outlawed repugnant customs like sati and child marriage and tirelessly fought for the advancement of women in India. Article 14 guarantees the right to equality for women, whereas Articles 15(1) and 15(3) provide the state the authority to take affirmative action for women's empowerment.

Due to its geoclimatic characteristics, India is one of the countries that is most susceptible to natural disasters. Therefore, international cooperation in this field is necessary for the effective management of disasters both within and outside of India's boundaries. At the Glasgow climate summit, the Indian government unveiled the Infrastructure for Resilient Island States (IRIS) program. IRIS uses satellite-based modelling and information systems to help Small Island Developing States to strengthen their technological and institutional capability in order to anticipate, avoid, and reduce the loss and damage brought on by catastrophes. This is a result of the rising understanding that institutional preparedness is essential for successfully managing disasters as a result of prior disaster experiences. Disaster management is increasingly viewed as a process that includes analysing threats, strengthening community ability, and lowering identified risks through disaster-resistant infrastructure and preparation at all levels.

Long term objectives of India include an overall development of industrial, agricultural and services sectors. Modernization based on rural development, industrial development, Infrastructure, raw material supply etc. will sustain the overall economic development for a long time. Thus, in this way we can say that the government has repaired the roof for the development of the entire economy. It will be helpful in resolving all types of existential financial concerns. Also, it is said that a good leader is one who take right decisions on time and must have an instinct of future implications and should have learned from past experiences too. So, it is required that the efforts to make things better must be constant with using the strategy to facilitate the situation and hit the victory of development.

SECTION: C

(PRELIMS)

CURRENT AFFAIRS

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HAMPI, KHAJURAHO AND OTHER UNESCO SITES ON LIST FOR G20 CULTURE TRACK

- ◎ **CONTEXT:** As a part of India's G20 Presidency between December 2022 and November 2023, the Government is planning to host five key meetings focusing on the cultural influence at Khajuraho, Bhubaneswar, Hampi and Agra for their ancient linkages and worldwide recognitions.

The FIVE sites listed: (Showcasing Cultural Agenda)

■ The Agra Fort, UP:

- It is an important **16th-century Mughal monument** known as the **Red Fort of Agra**.
- This powerful fortress of red sandstone encompasses, within its 2.5-km-long enclosure walls, the imperial city of the Mughal rulers.
- It comprises many fairy-tale palaces, such as the Jahangir Palace and the Khas Mahal, built by Shah Jahan; audience halls, such as the Diwan-i-Khas; and two very beautiful mosques.
- The Agra Fort, also known as the "Lal-Qila", "Fort Rouge" or "Qila-i-Akbari", is the highlight of the city of Agra, then capital of the **Mughal Sultanate**.



■ The Taj Mahal, Uttar Pradesh:

- It is an immense mausoleum of white marble, built in Agra between **1631 and 1648** by order of the **Mughal emperor Shah Jahan** in memory of his favourite wife, the Taj Mahal is the jewel of Muslim art in India and one of the universally admired masterpieces of the **world's heritage**.



■ The Konark Sun Temple, Odisha:

- Konark Sun Temple is a **13th-century CE (year 1250) Sun temple** at Konark about 35 kilometres (22 mi) northeast from Puri city on the coastline in Puri district, Odisha, India.
- The temple is attributed to king Narasimhadeva I of the Eastern Ganga dynasty about 1250 CE.
- Dedicated to the **Hindu Sun God Surya**, what remains of the temple complex has the appearance of a 100-foot (30 m) high chariot with immense wheels and horses, all carved from stone.
- The structures and elements that have survived are famed for their intricate artwork, iconography, and themes, including erotic kama and mithuna scenes.
- Also called the **Surya Devalaya**, it is a classic illustration of the Odisha style of Architecture or **Kalinga architecture**.



■ The Khajuraho Temple, Madhya Pradesh:

- The Khajuraho Group of Monuments are a group of Hindu and Jain temples in Chhatarpur district, Madhya Pradesh, India, about 175 kilometres southeast of Jhansi.

- They are a UNESCO World Heritage Site. The temples are famous for their nagara-style architectural symbolism and a few erotic sculptures.
- Most Khajuraho temples were built between 885 AD and 1000 AD by **the Chandela dynasty**. Historical records note that the Khajuraho temple site had 85 temples by the 12th century, spread over **20 square kilometers**.
- Of these, only about **25 temples** have survived, spread over **six square kilometers**.
- Of the surviving temples, the **Kandariya Mahadeva Temple** is decorated with a profusion of sculptures with intricate details, symbolism and expressiveness of ancient Indian art.



■ The Hampi, Karnataka:

- Hampi was the capital of the **Vijayanagara Empire** in the 14th century. It was a fortified city.
- Chronicles left by Persian and European travellers, particularly the Portuguese, say that Hampi was a prosperous, wealthy and grand city near the **Tungabhadra River**, with numerous temples, farms and trading markets.
- By 1500 CE, **Hampi-Vijayanagara** was the **world's second-largest medieval-era city** after Beijing and probably India's richest at that time, attracting traders from Persia and Portugal.



G20 Presidency: India's Role

- The **G20** is an intergovernmental forum comprising **19 countries** — Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, South Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the UK, the US — and the European Union.
- During the G20 Presidency, India is going to invite Bangladesh, Egypt, Mauritius, Netherlands, Nigeria, Oman, Singapore, Spain and UAE as guest countries.
- Setting the **cultural agenda** for the meetings to be organized during the presidency of India, it provides a fantastic opportunity to shape the global agenda on culture across multiple work streams and engagement areas.
- **These include:**
 - ▶ Protection and restitution of cultural property;
 - ▶ Advancement of traditional cultural practices for sustainable living;
 - ▶ Promotion of cultural and creative industries for livelihood generation; and
 - ▶ Preservation and dissemination of culture by leveraging technology.

CENTRE LAUNCHES PROGRAM TO STRENGTHEN KASHI-TAMIL NADU BOND

◎ CONTEXT:

The Union Government recently announced 'Kashi-Tamil Sangamam', a month-long program to "strengthen" and "rekindle" the cultural and civilizational bond between Tamil Nadu and Varanasi.

◎ ABOUT:

What is in this new program?

- **Time:** November 16 to December 16
The period will cover the Tamil month of **Karthikeya** during which all Tamil households go pray to Lord Shiva.
- This program is a part of the '**Ek Bharat Shreshtha Bharat**' initiative.
- It is aimed at rekindling the civilizational link between the new Kashi and Tamil Nadu — both deep centers of knowledge.

Ek Bharat Shreshtha Bharat The initiative 'Ek Bharat Shreshtha Bharat' was announced in 2015. The program aims to actively enhance interaction between people of diverse cultures living in different States and UTs in India, with the objective of promoting greater mutual understanding among them. Nodal Ministry: Ministry of Education

Kashi in Hindu mythology:

- Kashi is known to be derived from 'Kasha', the name of an ancient king, whose dynasty later produced the famous legendary king Dividasa of Kashi.
- The Kashi Khand of the **Skanda Purana** explains Kashi to be the name of the place where the light of Shiva shines most brilliantly.

The connection between Kashi and Tamil Nadu

- By the sixth century the Pallavas had adopted Hinduism and Shiva and Vishnu became the supreme Gods.
- The local deity, Murugan is incorporated into the Hindu pantheon.
- Brahmanical ideology became important for Pallava and Chola's self-glorification.
- The glorification of Shiva through grand temples is praised by the Tamil saints, called the Nayanars. In their poems, the Nayanars praised aspects of Hindu mythology like Ganga and Kashi, but at the same time, the Tamil region to be praised immensely.
- In the later Puranas, as sacred sites of southern India like Kanchipuram and Rameshwaram got added, they all came to be connected with Kashi as part of the same pilgrimage.
- There is a **Kashi Vishwanatha Temple** in almost every temple town of Tamil Nadu.

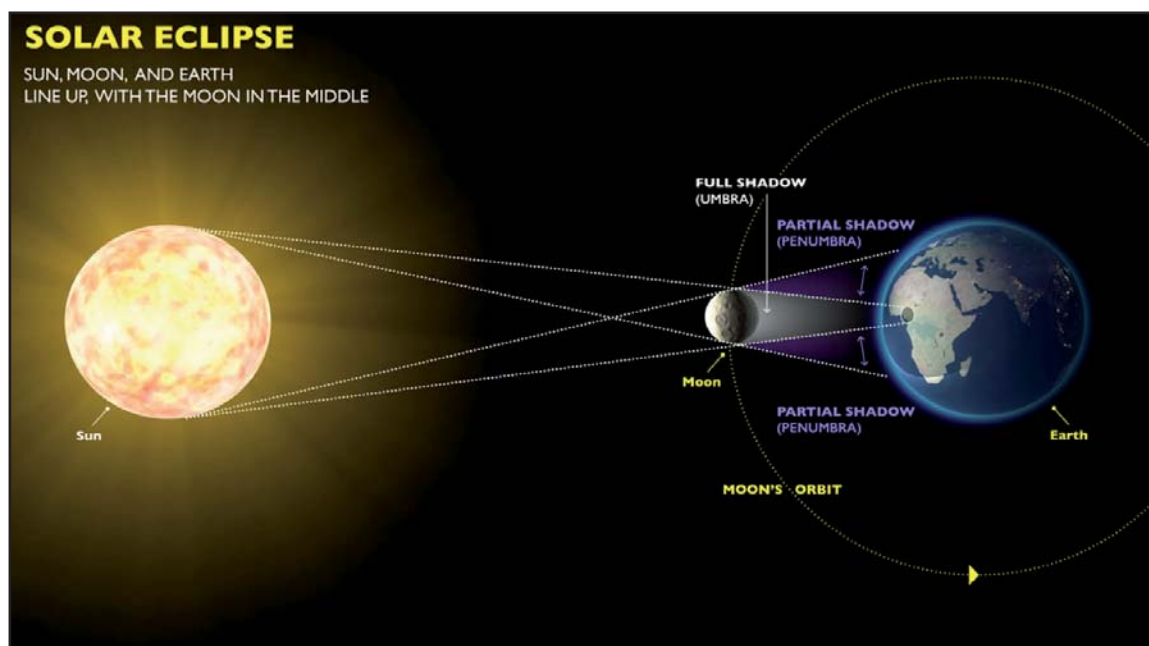


PARTIAL SOLAR ECLIPSE OF THE YEAR 2022

- ◎ **CONTEXT:** A Partial solar eclipse has been seen on the western horizon shortly before the sunset on 25th October, 2022.

◎ ABOUT

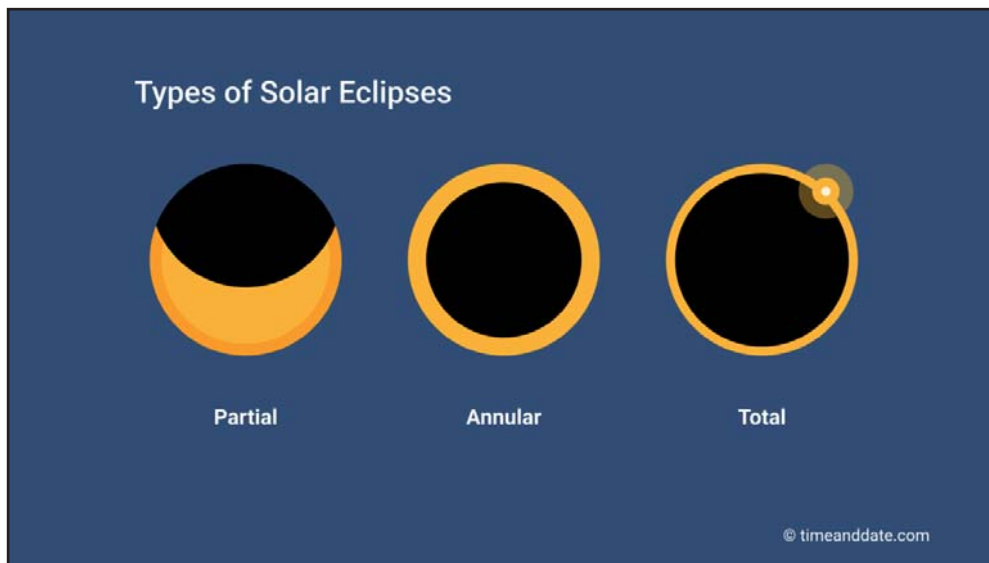
The Solar Eclipse:



- A solar eclipse occurs when the moon “eclipses” the sun.
- This means that the moon, as it orbits the Earth, comes in between the sun and the Earth, thereby blocking the sun and preventing any sunlight from reaching us.

There are four types of solar eclipses:

- **Partial solar eclipse:** The moon blocks the sun, but only partially. As a result, some part of the sun is visible, whereas the blocked part appears dark. A partial solar eclipse is the most common type of solar eclipse.
- **Annular solar eclipse:** The moon blocks out the sun in such a way that the periphery of the sun remains visible. The unobscured and glowing ring, or “annulus,” around the sun is also popularly known as the “ring of fire.” This is the second most common type of eclipse.
- **Total solar eclipse:** As the word “total” suggests, the moon totally blocks out the sun for a few minutes, leading to a period of darkness -- and the resulting eclipse is called a total solar eclipse.
 - During this period of darkness, one can witness the solar corona, which is usually too dim to notice when the sun is at its full glory.
 - Also noticeable is the diamond ring effect, or “Baily’s beads,” which occurs when some of the sunlight is able to reach us because the moon’s surface is not perfectly round. These imperfections (in the form of craters and valleys) can allow sunlight to pass through, and this appears just like a bright, shining diamond.
- **Hybrid solar eclipse:** The rarest of all eclipses is a hybrid eclipse, which shifts between a total and an annular eclipse.
 - During a hybrid eclipse, some locations on Earth will witness the moon completely blocking the sun (a total eclipse), whereas other regions will observe an annular eclipse.



Lunar Eclipse vs. Solar Eclipse:

- When the Earth moves between the Sun and the Moon, the planet obscures the Moon's ability to reflect sunlight. The Moon's surface is then covered by Earth's shadow rather than the Sun's light. This phenomenon is called a lunar eclipse.
- A lunar eclipse only occurs on a full Moon.
- Whereas, a solar eclipse occurs when the moon moves between the earth and the Sun and obscures the sunlight from reaching the planet.

Why does the Eclipse seen vary according to the Positions?

- Since Moon is smaller as compared to the Sun and Earth, its shadow on Earth isn't very big.
- As a result, only some places on the planet get to witness the phenomenon. People who are on the sunny side of Earth and in the path of the moon's shadow can see the solar eclipse, while others cannot.

RUSSIA JOINS THE RACE TO SUPPLY LIGHT BATTLE TANKS TO THE INDIAN ARMY

◎ **CONTEXT:** Russia will field its Sprut-SDM1 light amphibious tank for the Indian Army's upcoming tender for light tanks.

Details:

- The project has received in-principle approval and is planned to be procured under the 'Make-I' acquisition category of the Defense Acquisition Procedure (DAP)-2020.
 - 'Make-I' refers to government-funded projects while 'Make-II' covers industry-funded programmes.
 - Make-I was involved in the development of big-ticket platforms such as light tanks and communication equipment with Indian security protocols.
- This is in line with the 'Make in India' initiative.



- The **Acceptance of Necessity (AoN)** from the Defence Acquisition Council is expected shortly.

Defence Acquisition Procedure (DAP) 2020:

- It enables the **notification of a List of Weapons or Platforms that will be banned** for import.
- It focuses **on Foreign Direct Investment (FDI) in defence manufacturing** and indigenization of the manufacturing prices.
- It also introduces several new ideas such as **the need to incorporate artificial intelligence in platforms and systems, the use of indigenous software in defence equipment** and **'innovation' by Start-ups and MSMEs (Micro, Small and Medium Enterprises)** as new categories of defence acquisition.

About Sprut-SDM1 Light Amphibious Tank:

- **Project Type:** Light amphibious tank
- **Manufacturer:** Tractor Plants Concern
- **Crew:** Three
- **Length:** 7.08m
- **Maximum Amphibious Speed:** 7km/h
- **Maximum Road Speed:** 70km/h
- **Maximum Range:** 500km

Armament and protection feature of Sprut-SDM1:

- **The primary armament of the tank** is a 125mm gun fitted to the remote-controlled weapon station.
- **The secondary armament of the tank** consists of a 7.62mm machine gun and a 7.62mm coaxial machine gun.
- **Guided missile weapon system:** To defeat **explosive reactive armour (ERA)**-equipped targets and armoured fighting vehicles at ranges up to 5km.
- Protection of the onboard crew from **nuclear, biological and chemical (NBC) threats**.
- **Fire control system:** A next-generation digital fire control system (FCS) is integrated in the amphibious vehicle.
- **Hydro-pneumatic type suspension system:** It offers improved driving comfort over all types of terrain.

Other Capabilities:

- Cross water obstacles and fire its gun while afloat

- Disembark from a ship

Chinese deployments in eastern Ladakh (LAC):

- Third-generation modern light tank ZTQ 15 (Type 15)
- The latest ZTL-11 wheeled Armoured Personnel Carriers
- CSK series of assault vehicles

- Operate in high mountains in conditions of thin air, at very high and low temperatures.

Need for light tank:

- After a standoff with China in eastern Ladakh, the Indian Army is prioritising the procurement of a light tank, named '**Zorawar**', for deployment in the mountains.
- The army had issued a **Request for Information (RFI)** for the procurement of 350 light tanks weighing less than 25 tonnes in a phased manner.

INFORMATION AND BROADCASTING MINISTRY'S ORDERS FOR THE STATE GOVERNMENTS

- ◎ **CONTEXT:** In view of the recommendations of Telecom regulatory authority of India (TRAI), the Ministry of Information and Broadcasting has ordered the State Governments' to take consent from the public broadcaster, the 'Prasar Bharati'.

◎ **ABOUT**

The Recent Guidelines:

- The entry of Central/State/Union Territory governments into the broadcast activity for educational purposes would be allowed through **Prasar Bharati** route via "suitable" means.
- All such existing activities would also have to be brought under its purview.
- Till then, uninterrupted broadcast of the on-going education channels and other scheduled programmes would be allowed.
- Under the existing policy guidelines, government universities, colleges, schools, Krishi Vigyan Kendras, certain autonomous bodies and agricultural universities are eligible to set up community radios.

TRAI:

- TRAI regulates telecom services including fixation/revision of tariffs for telecom services which were earlier vested in the Central Government.
- It also aims to provide a fair and transparent policy environment which promotes a level playing field and facilitates fair competition.
- Headquarters: The head office of the Telecom Regulatory Authority of India (TRAI) is located at New Delhi.

Do States have a call on their own Broadcasting in India?

- In the context of the demand by some States to have their own broadcasting stations, the TRAI had cited the views of Sarkaria Commission and the Verghese Committee, the power of an exclusive call to the States regarding broadcasting could not be supported.

Prasar Bharati: Roles and Working

- Prasar Bharati, is an independent statutory, autonomous body set up by an Act of Parliament.
- It comprises of the Doordarshan Television Network and Akashvani All India Radio, which were earlier media units of the Ministry of Information and Broadcasting.
- The Parliament of India passed the Prasar Bharati Act to grant this autonomy in 1990, but it was not enacted until 15 September 1997.

Do you know?

Reuters Institute' Digital News Report 2021 'revealed that DD News and All India Radio are the most trusted News brands in India.

- **Roles assigned:** The TRAI has suggested that the body should fulfil the legitimate aspirations of government entities as regards broadcasting activities, while at the same time recommending the 'arm's length' relationship between Prasar Bharati and the government be further strengthened to enhance its autonomy and functional independence.
- **Composition:** The Prasar Bharati Act vests the general superintendence, direction, and management of affairs of the Corporation in the Prasar Bharati Board which may exercise all such powers and do all such acts and things as may be exercised or done by the corporation.
- The Prasar Bharati Board consists of:
 - Chairman
 - One Executive Member
 - One Member (Finance)
 - One Member (Personnel)
 - Six Part-time Members
 - Director-General (Akashvani), ex officio
 - Director-General (Doordarshan), ex officio

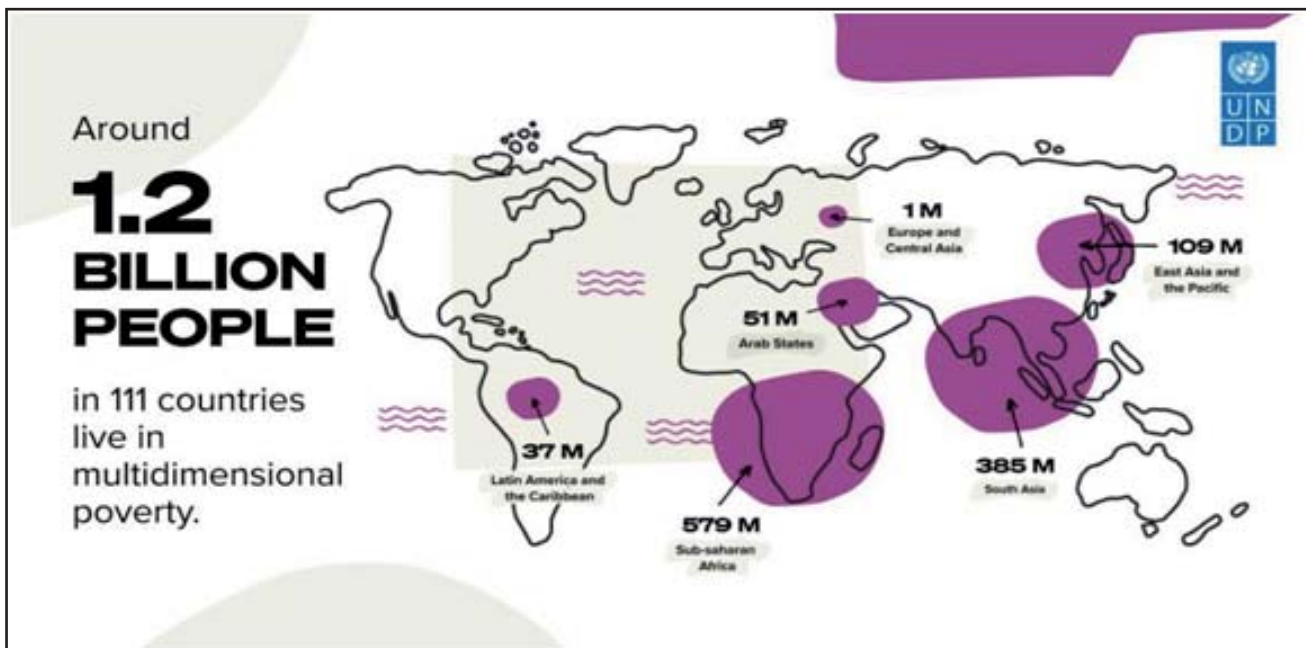


GLOBAL MULTIDIMENSIONAL POVERTY INDEX RELEASED

- ◎ **CONTEXT:** The recently released Global Multidimensional Poverty Index (MPI) indicates that 41.5 crore people exited poverty in India during the 15-year period between 2005-06 and 2019-21.

Key Highlights: (India-specific Data)

- It shows that the **incidence of poverty fell** from 55.1% in 2005-06 to 16.4% in 2019-21 in the country.
- The **deprivations in all 10 MPI indicators saw significant reductions** as a result of which the MPI value and incidence of poverty more than halved.
- **About 41.5 crore people exited poverty in India** during the 15-year period between 2005-06 and 2019-21, out of which two-thirds exited in the first 10 years, and one-third in the next five years.
- Improvement in MPI for India has significantly contributed to the **decline in poverty in South Asia**.
- It is for the **first time that it is not the South Asian region** with the highest number of poor people, at 38.5 crores, compared with 57.9 crores in **Sub-Saharan Africa**.



- The **report doesn't fully assess the effects of the COVID-19 pandemic on poverty in India** as 71% of the **data from the National Family Health Survey-5 (2019-2021) relied upon for MPI were collected before the pandemic.**
- **Bihar is the poorest State in 2015-2016, seeing the fastest reduction in MPI value** in absolute terms. The incidence of poverty there fell from 77.4% in 2005-2006 to 34.7% in 2019-2021.

India's present scenario:

- India has by far the largest number of poor people worldwide at 22.8 crores, followed by Nigeria at 9.6 crores.
- Two-thirds of these people live in a household in which at least one person is deprived of nutrition.
- There were also 9.7 crore poor children in India in 2019-2021.
- About 4.2% of the population in the country still lives in severe poverty.
- Rural areas account for nearly 90% of poor people.

The Global Multidimensional Poverty Index:

- **Definition:** The global Multidimensional Poverty Index (MPI) is an international measure of acute multidimensional poverty covering over 100 developing countries.
 - ▶ It complements traditional monetary poverty measures by capturing the acute deprivations in health, education, and living standards that a person faces simultaneously.
- **Developed by:** The global MPI was developed by Oxford Poverty and Human Development Initiative (OPHI) with the UN Development Programme (UNDP) for inclusion in UNDP's flagship Human Development Report in 2010.
 - ▶ It has been published annually by OPHI and in the HDRs ever since.
- The global MPI constructs a deprivation profile of each household and person through 10 indicators spanning health, education, and standard of living and includes both incidences as well as the intensity of poverty.
- All indicators are equally weighted within each dimension.
- The global MPI identifies people as multi-dimensionally poor if their deprivation score is **1/3** or higher.

PM MODI INAUGURATES 'ONE NATION, ONE FERTILIZER' SCHEME

- ◎ **CONTEXT:** Recently, the Prime Minister has inaugurated 600 Kisan Samridhi Kendras and the 'One Nation, One Fertilizer' scheme to modernize agriculture.

One Nation, One Fertilizer Scheme:

Other highlights of the event:

- Launch of Weekly Fertilizer International e-Magazine "Indian Edge".
 - Inauguration of 600 **PM-Kisan Samruddhi Kendras (PM-KSK)**.
- The scheme will consist of a "Single Brand for Fertilisers and Logo" under the fertilizer subsidy scheme named "**Pradhanmantri Bhartiya Janurvarak Pariyojna**" (**PMBJP**).
 - The scheme would extend to all four fertilizers – Urea, Di-Ammonium Phosphate, Muriate of Potash, and complex NPK – with '**BHARAT**' pre-fixed.
 - The single brand name would be BHARAT UREA, BHARAT DAP, BHARAT MOP, and BHARAT NPK, etc. respectively for all Fertiliser Companies, State Trading Entities (STEs) and Fertiliser Marketing Entities (FMEs).
 - Under the scheme, companies are allowed to display their name, brand, logo, and other relevant product information only on one-third space of their bags.
 - On the remaining two-thirds of the space, the "Bharat" branded Pradhanmantri Bharatiya Jan Urvarak Pariyojana logo will have to be shown.

Need of the Initiative:

- India is among the world's largest buyers of fertilizer, besides China, Brazil, and the US.
- **India imports four types of fertilizers:**
 - Urea
 - diammonium phosphate (DAP)
 - muriate of potash (MOP)
 - nitrogen-phosphorous-potassium (NPK)

Significance of the Scheme:

- **Standardization** of fertiliser brands across the nation.
- **Stopping urea diversion**
- **Reduced freight charges**
- **Affordable quality fertiliser of Bharat brand**

Central government subsidy on fertilizers:

- The fertilizer sector is a highly subsidized area. Where the maximum retail price (MRP) is fixed for urea and subsidy is fixed for non-nitrogenous fertilizer phosphate and potassium (P and K).
- Nearly 80 percent of the cost of production of urea and P&K is being paid to fertilizer manufacturers in the form of a central government subsidy.

INS ARIHANT VALIDATES INDIA'S NUCLEAR CAPABILITY

◎ **CONTEXT:** The country's first ballistic missile nuclear submarine (SSMN) INS Arihant has carried out a successful launch of a Submarine Launched Ballistic Missile (SLBM) validating India's second strike nuclear capability.

- ◎ **BACKGROUND**
- Arihant was launched on **26 July 2009**, the anniversary of Vijay Diwas (Kargil War Victory Day).
 - After extensive sea trials, on 23 February 2016, she was confirmed as ready for operations, commissioned in August 2016, and deployed operationally in 2018.
 - In November 2019, **India formally declared its nuclear triad**, stated in its nuclear doctrine, operational after INS Arihant has begun prowling the **deep seas** carrying ballistic missiles equipped with nuclear warheads.

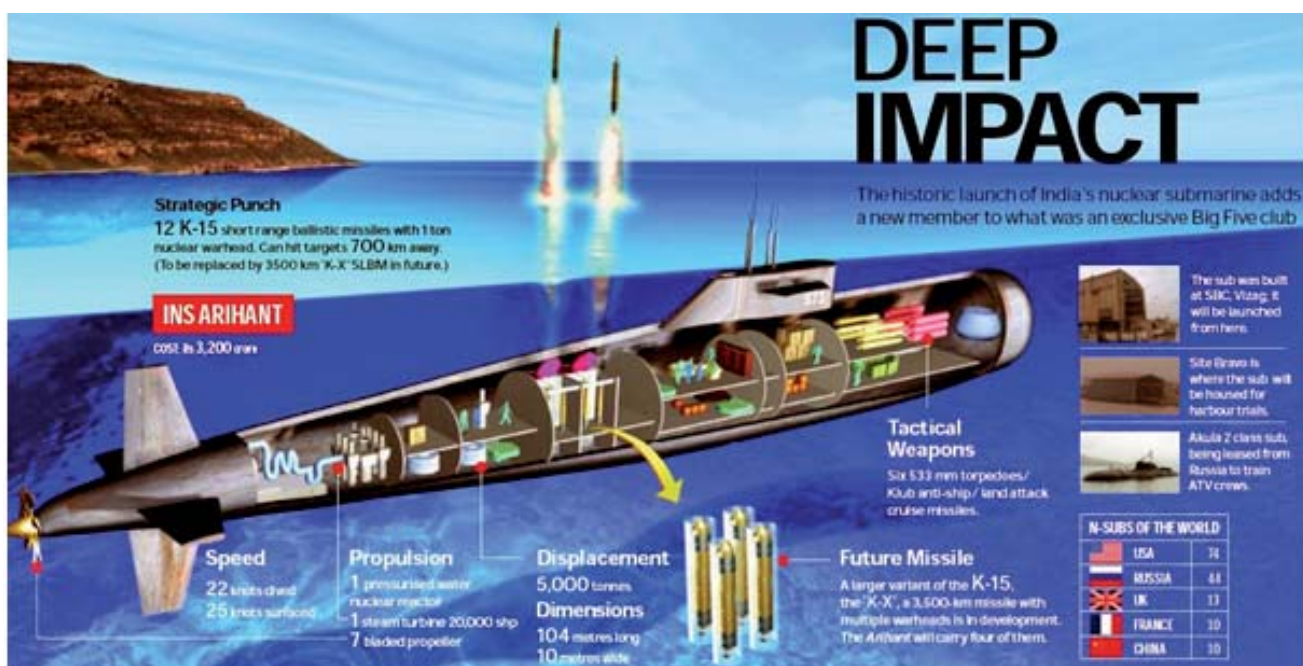
The **Agni series** of missiles constitute the **backbone of India's nuclear weapons** delivery, which also includes the **Prithvi** short range ballistic missiles and fighter aircraft.

About INS Arihant:

- INS Arihant (SSBN 80)** is a Strategic Strike Nuclear Submarine and the lead ship of India's Arihant class of **nuclear-powered ballistic** missile submarines.
- The **6,000 tonne vessel** was built under the **Advanced Technology Vessel (ATV)** project.
- Design:** It has four vertical launch tubes, which can carry 12 (three per launch tube) smaller K-15 missiles or four larger K-4 missiles. The K-4 has a longer range of **3,500 km** (2,200 mi).

General Features:

- Length:** 111 m (44 km/h; 28 mph); Surfaced: 15 knots (28 km/h; 17 mph)
- Beam:** 15 m
- Speed:** Submerged: 24 knots
- Status:** in active service
- Homeport:** Visakhapatnam
- Commissioned:** August 2016



RESEARCHERS DETECT BARIUM IN ATMOSPHERES OF 2 EXO-PLANETS

- ◎ **CONTEXT:** Recently, the Scientists have detected barium in the upper atmosphere of two giant exo-planets for the first time. Barium, two and half times heavier than iron, is the heaviest-ever detected element.

What are Exoplanets?

- An exoplanet is any planet beyond the solar system. Most orbit other stars, but free-floating exoplanets, called rogue planets, orbit the galactic center and are untethered to any star.

Do you Know?

- **Exoplanet Kepler-452b: Similar to Earth or (EARTH-like):** NASA considers exoplanet **Kepler-452b** and its star to be the closest analog to our planet and Sun so far.
- Though it's 60% larger than Earth in diameter, Kepler-452b is thought to be rocky and within the habitable zone of a **G-type star** similar to ours.

About the Study:

- The exoplanets been considered are two **ultra-hot Jupiters** — **WASP-76b** and **WASP-121b** — which orbit their **host stars** WASP 76 and WASP 121 (Named so as they have similar properties like Jupiter)
- They are about **640 light-years** away and **900 light-years** away from the Earth respectively.
- Both WASP-76b and WASP-121b complete one orbit in two days. Surface temperatures in these bodies reach as high as **1,000 degrees Celsius**.
- These bodies have unique features owing to their **high temperatures**. For instance, WASP-76b **experiences 'iron rain'**.
- They also confirmed the presence of hydrogen, lithium, sodium, magnesium, calcium, vanadium, chromium, manganese and iron in the atmosphere of the WASP-76 b, in **addition to barium**.
- **WASP-76b:** The planet was discovered on October 21, 2013 and as of 2022 is the only known planet in its planetary system. It orbits its star at a distance of 0.033 AU with a period of 1.8 days. Its mass is **0.92 times** that of Jupiter.
- **WASP-121b:** WASP-121b is an extrasolar planet orbiting the star WASP-121.
- WASP-121b is the first exoplanet found to contain water in an extrasolar planetary stratosphere

Properties of Barium:

- **Appearance:** Barium is a soft, silvery metal that rapidly tarnishes in air and reacts with water.
- **Occurrence:** Barium occurs only in combination with other elements. The major ores are barite (barium sulfate) and witherite (barium carbonate). Barium metal can be prepared by electrolysis of molten barium chloride, or by heating barium oxide with aluminium powder.
- **Uses:**
 - It is also used in paint and in glassmaking.
 - All barium compounds are toxic; however, barium sulphate is insoluble and so can be safely swallowed. A suspension of barium sulphate is sometimes given to patients suffering from digestive disorders.
 - Barium carbonate has been used in the past as a rat poison. Barium nitrate gives fireworks a **green colour**.



- Barium has no known **biological role**, although barium sulphate has been found in one particular type of algae. Barium is toxic, as are its water- or acid-soluble compounds.

Why these metals are unique to be found in the Atmosphere?

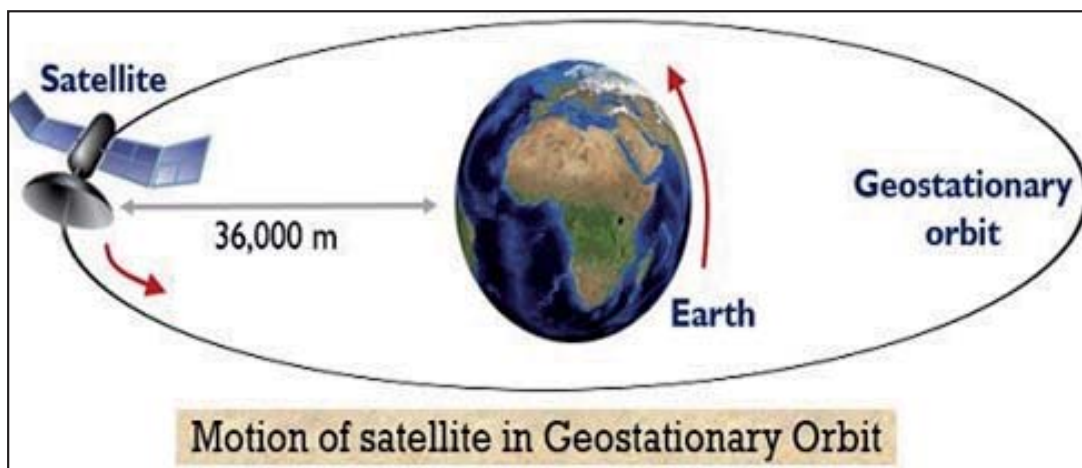
- This discovery of barium is surprising because heavy elements like barium are expected to quickly fall (**as these exoplanets have high gravity**) into the lower layers of the atmosphere.
- It revealed some new dynamics inside the atmospheres or gives us insights into the composition of these distant planets.

GSLV MK-III LAUNCHED '36 ONE WEB' SATELLITES

- ◎ **CONTEXT:** Indian Space Research Organisation's heaviest rocket, **GSLV Mk-III**, launched 36 satellites of the '**OneWeb communication**' constellation. With this the **GSLV Mk-III** entered the **global commercial launch service market**.

Facts:

India currently has **three operational** launch vehicles – the **PSLV, GSLV, and GSLV Mk III**. The space agency has also developed a small satellite launch vehicle, whose first development flight was partially successful.



- ◎ **ABOUT**
- This is the first time that India's heaviest rocket is being used for a commercial launch.
 - Also, this will be the first time a rocket other than India's workhorse – **Polar Satellite Launch Vehicle (PSLV)** – is being used to carry out commercial launch.
 - Till now, the PSLV has conducted at least **eight commercial-only launches**.

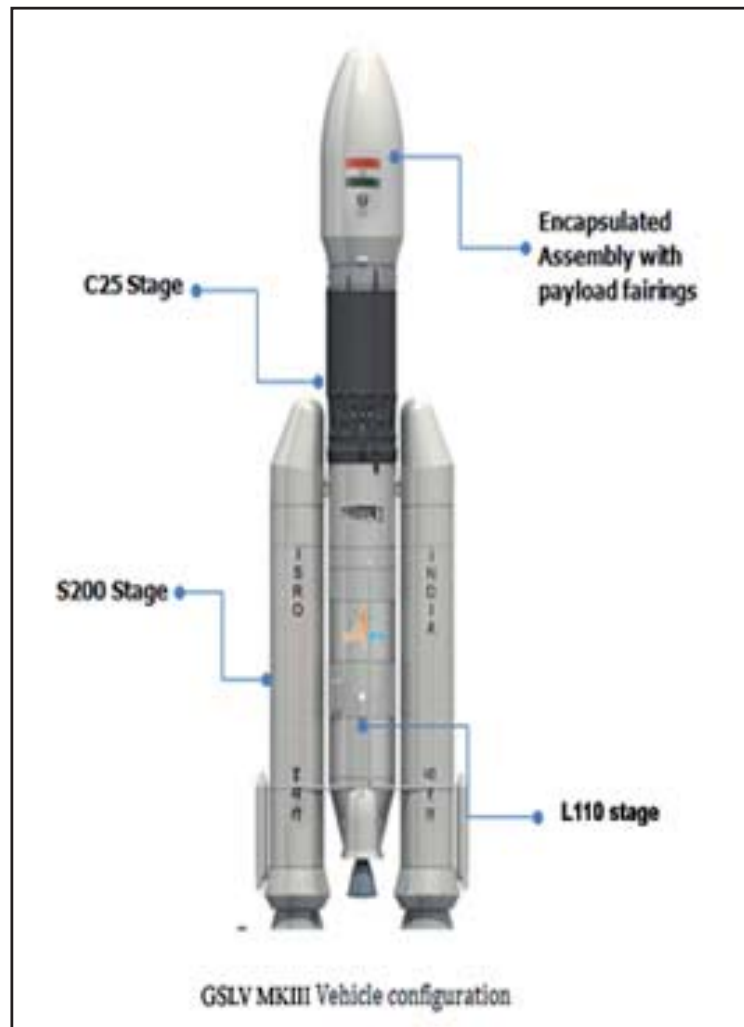
Geostationary Orbit of earth: (Orbit of Communication Satellites)

- A **geostationary orbit** is also referred to as a **geosynchronous equatorial orbit (GEO)**.
- It is a circular geosynchronous orbit 35,786 km (22,236 mi) in altitude above Earth's equator (42,164 km (26,199 mi) in radius from Earth's centre) and following the direction of Earth's rotation.

The GSLV Mk-III rocket:

- The Geosynchronous Satellite Launch Vehicle Mark III (GSLV Mk III), also referred to as the **Launch Vehicle Mark 3 (LVM3)**, is a three-stage, medium-lift launch vehicle developed by ISRO.

- The **three stages** of the LVM3:
 - two solid strap-on motors (S200)
 - one liquid core stage
 - A high-thrust cryogenic upper stage make up the LVM3



- The first successful experimental flight of LVM3 was made in December 2014.
- Primarily designed to launch communication satellites into **geostationary orbit**, it is also identified as the launch vehicle for crewed missions under the Indian Human Spaceflight Programme.
- It was used in dedicated science missions like **Chandrayaan-2**.
- The GSLV Mk III has a **higher payload capacity** than the similarly named GSLV Mk II.
- The GSLV Mk-III will have improvements to increase reliability and safety to meet the requirements of 'human ratings'.

ISRO'S NEXT-GEN LAUNCH VEHICLE

© **CONTEXT:**

Recently, addressing a three-day Engineers conclave 2022, the ISRO chairman has announced to launch Next-Gen Launch Vehicle (NGLV), which is-going to replace operational systems like the Polar Satellite Launch Vehicle (PSLV).

◎ ABOUT

What are launch vehicles?

- Launchers or Launch Vehicles are used to carry spacecraft to space. India has two operational launchers:
 - Polar Satellite Launch Vehicle (PSLV)
 - Geosynchronous Satellite Launch Vehicle (GSLV)

What is the New-Gen Launch Vehicle (NGLV)?

- NGLV is aimed at a cost-efficient, three-stage to orbit, reusable heavy-lift vehicle with a payload capability of ten tonnes to **Geostationary Transfer Orbit (GTO)**.
- It is featured with **semi-cryogenic propulsion** (refined kerosene as fuel with liquid oxygen (LOX) as oxidiser) for the booster stages which is cheaper and efficient.
- Design:**
 - Design will be simple and robust which allows bulk manufacturing, modularity in systems, sub-systems and stages and minimal turnaround time.
- Uses:** Potential uses will be in the areas of launching communication satellites, deep space missions, future human spaceflight and cargo missions.

Retired Launchers

- SLV-3
- ASLV

It will replace **the PSLV launch vehicle** and aimed to be more efficient than other launch vehicles of ISRO.

The PSLV:

- Polar Satellite Launch Vehicle (PSLV) is the **third generation** launch vehicle of India.
- It is the **first Indian launch** vehicle to be equipped with **liquid stages**.
- After its first successful launch in **October 1994**, PSLV emerged as a reliable and versatile workhorse launch vehicle of India.

INTERPOL LAUNCHES METAVERSE FOR GLOBAL LAW ENFORCEMENT

- ◎ **CONTEXT:** The Interpol launched the first-ever metaverse specifically designed for law enforcement agencies worldwide during its 90th General Assembly in Delhi.

What is Metaverse?

- The metaverse is a **3D version** of the Internet and computing at large.

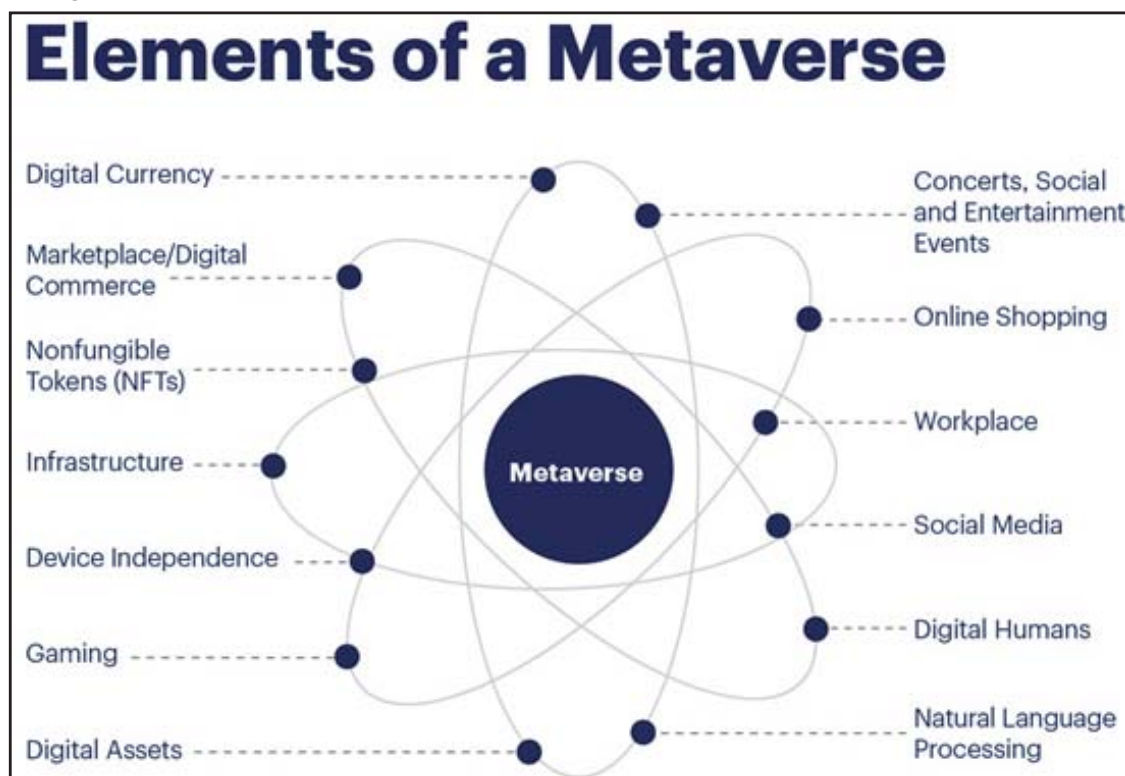
In his 1992 science fiction novel "**Snow Crash**," Author Neal Stephenson coined the term "metaverse" in which he envisioned lifelike avatars who met in realistic **3D buildings** and other virtual reality environments.

- The intent of the metaverse is to give users the power to create their own experiences and also to interact with others in these spaces, and even collaborate with each other.

- The metaverse combines aspects of **physical reality, virtual reality (VR), augmented reality (AR), artificial intelligence (AI), social media, online gaming, and cryptocurrencies**, allowing users to interact virtually.

| Internet | Metaverse |
|--|--|
| <ul style="list-style-type: none"> • People can interact with something — be it a website, a game, or a social media platform. • With the internet, you can be online without necessarily interacting with other people. | <ul style="list-style-type: none"> • Metaverse puts the user in the middle of the action. To a degree, people can “live” in the metaverse. • The foundation of the metaverse is about digital human interaction. It’s about people sharing a virtual universe together, be it for work, school, exercise, or simply for fun. |

- ◎ **APPLICATION:**
- The INTERPOL Metaverse is provided through the INTERPOL Secure Cloud, ensuring its neutrality.
 - This “fully operational” Interpol Metaverse allows registered users to **tour a virtual facsimile** of the Interpol General Secretariat headquarters in Lyon, France without any geographical or physical boundaries, interact with other officers via their avatars, and even take immersive training courses in forensic investigation and other policing capabilities.

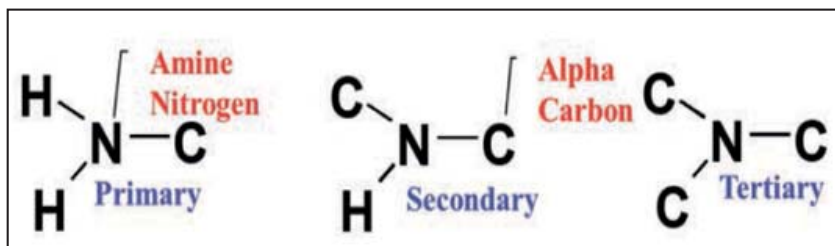


CAN CARBON CAPTURE BE NEW HOPE FOR MITIGATING CO₂ EMISSIONS?

- ◎ **CONTEXT:** Recently, the NTPC Vindhyachal in Madhya Pradesh limited has taken an initiative to capture the carbon as electricity production by coal accounts for 40% of the CO₂ emissions.

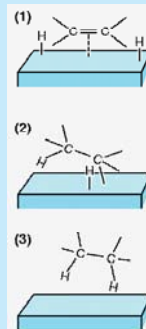
- ◎ **ABOUT**

- India stands third among the GHG-emitting countries in the world, emitting 2,310 megatons of CO₂ in 2019.
- These scenarios necessitate the mitigation of GHG reduction in the country to combat the effects of climate change.
- The pioneer project of a carbon capture plant installed in NTPC Vindhyachal is in line with this, which is designed to capture **20 tonnes of CO₂ per day**.
- It uses modified '**tertiary amine**' to capture CO₂ from **flue gas** from fossil-fired power plants, with a purity of more than **99 per cent**.
 - Tertiary amine (3° amine)**: An amine in which the **nitrogen atom** is directly bonded to three carbons of any hybridization which cannot be carbonyl group carbons.
- CO₂ will eventually be integrated with hydrogen to produce **10 tonnes of methanol** per day through a catalytic **hydrogenation process**.



Hydrogenation is a chemical reaction between molecular hydrogen (H₂) and another compound or element, usually in the presence of a catalyst such as **nickel, palladium or platinum**.

- The process is commonly employed **to reduce** or saturate **organic compounds**.
- Hydrogenation typically constitutes the addition of pairs of hydrogen atoms to a molecule, often an alkene.
- Catalysts are required for the reaction to be usable; non-catalytic hydrogenation takes place only at very high temperatures. Hydrogenation reduces double and triple bonds in hydrocarbons.



- Currently, there are no **Carbon Capture, Utilisation and Storage (CCUS)** projects in the pipeline in power plants for carbon capture in India.

The Carbon capture, Utilisation and Storage (CCUS) Technique:

- CCUS is a process that captures carbon dioxide emissions from sources like coal-fired power plants and either reuses or stores it so it will not enter the atmosphere.
- Carbon dioxide storage in geologic formations includes **oil** and gas reservoirs, un-mineable coal seams and deep saline reservoirs -- structures that have stored crude oil, **natural gas**, brine and carbon dioxide over millions of years.






76 BUTTERFLY SPECIES COUNTED ACROSS 7 BIODIVERSITY PARKS IN DELHI

◎ CONTEXT:

In the recently observed 'Butterfly assessment week' for Delhi's biodiversity parks, it has found 76 species of butterflies remaining highest in the Aravalli range.

The Butterfly Assessment Week: Data

- The assessment week was conducted by scientists at the biodiversity parks along with **volunteers, students and teachers**.
- A total of **5,922 butterflies** were counted for the year 2022.
- The highest number of species has been found from **Aravalli Biodiversity Park at 68**.
- The **largest populations** were found to be of species like;

| Butterfly species | Description |
|---|---|
| The Mottled emigrant  | <p>Mottle markings throughout the under-side and variable cell end patches may have rosy or silver spots. A large black spot on the fore wing cell and broader marginal bands on upper side in females. Some individuals have a bluish appearance on wings. Much smaller individuals can be seen in very dry months. Male is quite smaller than the female.</p> |
| Common emigrant  | <p>Catopsilia pomona, the common emigrant or lemon emigrant, is a medium-sized pierid butterfly found in Asia, Cambodia and parts of Australia. The species gets its name from its habit of migration.</p> <p>Some early authors considered them as two distinct species <i>Catopsilia crocale</i> and <i>Catopsilia pomona</i>.</p> |
| Plain Tiger  | <p><i>Danaus chrysippus</i>, also known as the plain tiger, African queen, or African monarch, is a medium-sized butterfly widespread in Asia, Australia and Africa.</p> <p>The plain tiger is believed to be one of the first butterflies depicted in art. A 3,500-year-old ancient Egyptian fresco in Luxor features the oldest known illustration of this species.</p> |
| Lemon pansy  | <p><i>Junonia lemonias</i>, the lemon pansy, is a common nymphalid butterfly found in Cambodia and South Asia. It is found in gardens, fallow land, and open wooded areas.</p> |
| Common grass yellow  | <p><i>Eurema hecabe</i>, the common grass yellow, is a small pierid butterfly species found in Asia, Africa and Australia.</p> <p>They are found flying close to the ground and are found in open grass and scrub habitats. It is simply known as "the grass yellow" in parts of its range.</p> |

Significance of Butterflies:

- Butterflies and bees are Pollinators, and are an important aspect of any ecosystem.
- They contribute in **regenerating forests** which can be very difficult without pollinators.
- The habitats created for butterflies also tend to attract bees. The butterflies can be good indicators of the **quality of habitats**, according to scientists.

List of Delhi's Biodiversity Parks:

- A total of **7 Biodiversity Parks** have been notified by Delhi Development Authority, of which two are fully functional and others are being developed.
- **They are namely as;**
 - Yamuna Biodiversity Park
 - Aravalli Biodiversity park
 - Kamla Nehru Biodiversity Park
 - Tilpath Valley Biodiversity park
 - Neela Hauz Biodiversity park
 - Kalindi Biodiversity Park
 - Tughlaqabad Biodiversity Park
- These Biodiversity Parks are owned by **Delhi Development Authority** and form a part of urban infrastructure and have educational, conservation and cultural values, besides rendering a wide range of ecological services.
- In the year 2012, **Yamuna Biodiversity Park** was dedicated to the nation by former Lt. Governor of Delhi Shri Tejendra Khanna and **Aravalli Biodiversity Park** was dedicated to the nation by Hon'ble Lt. Governor of Delhi Shri Najeeb Jung, in the year 2015.

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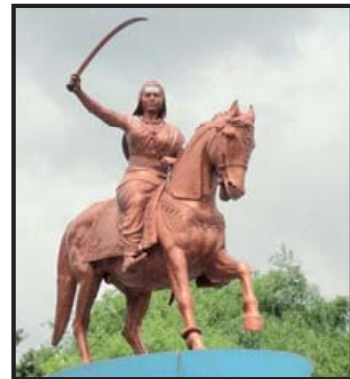
CURRENT AFFAIRS

KITTUR UTSAV CELEBRATIONS IN KARNATAKA

- ◎ **CONTEXT:** The two-day State-level Kittur Utsav is celebrated in Karnataka which has significance related to initial phase of Freedom struggle of India against the British in 1824.

About Kittur Utsav:

- Kittur Utsav is a state-level festival, celebrated in memory of **Kittur Rani Chennamma**, who had fought the British 30 years before the **First War of Independence in 1857** but had not got any recognition at the national level.
- **Kittur Chennamma** was the Indian Queen of Kittur, a former princely state in present-day Karnataka.
- Kittur Chennamma was born on 23 October 1778, in Kakati, a small village in the present Belagavi District of Karnataka, India.
- She belonged to the **Lingayat community** and received training in horse riding, sword fighting, and archery from a young age.



Lingayat Community

- The Lingayat/Veerashaiva community, a politically dominant group in Karnataka, are devotees of Shiva.
- The Lingayats follow 12th-century saint-philosopher Basavanna who had rejected ritualistic worship and pre-eminence of the Vedas.
- She married **Raja Mallasarja** of the Desai family at the age of 15.
- She led an armed resistance against the **British East India Company** in 1824, in defiance of the **Paramountancy**, in an attempt to retain control over her dominion.
- She defeated the Company in the **first revolt** but died as a prisoner of war after the second rebellion.
- As one of the first and few female rulers to lead rebel forces against British colonization, she continues to be remembered as a folk hero in Karnataka, she is also an important symbol of the **Indian independence movement**.

PRESIDENT DROUPADI MURMU FLAGS OFF TRIPURA-MANIPUR TRAIN

- ◎ **CONTEXT:** Recently, President Droupadi Murmu has flagged off two passenger trains, one of them connecting Tripura and Manipur for the first time.

◎ **ABOUT:**

- The Jan Shatabdi Express is to operate between Tripura capital Agartala and Khongsang in Manipur.
- The other train is a special express linking Agartala and Kolkata via Guwahati.

Upcoming Projects:

Guwahati-Lumding-Guwahati Express: The first train between Nagaland and Meghalaya.

- The **Northeast Frontier Railway (NFR)** has undertaken an ambitious project to connect **all eight northeastern States'** capitals or take the railway line to a strategic place nearest these towns.

Key features of the Project:

- The Agartala-Khongsang section is on the **110 km Jiribam-Imphal** new line project.
- The project is a part of the aspiring initiative to **connect northeast** from mainland India.



THE INTERPOL GENERAL ASSEMBLY MEETING HELD IN DELHI

◎ **CONTEXT:** The General Assembly of the International Criminal Police Organisation (Interpol) recently held in Delhi.

- This is the second time **since 1997** the **195 member-strong body** is holding such a large conference in India.

◎ **ABOUT:** • Interpol was set up in 1923.

- It is a secure information-sharing platform that facilitates criminal investigation of police forces across the globe through collection and dissemination of information received from various police forces.
- Aim: to promote the widest-possible mutual assistance between criminal police forces.
- Functions:
 - It keeps track of the movements of criminals and those under the police radar in various regions and tips off police forces which had either sought the Interpol's assistance or which in its opinion will benefit from the particulars available with it.

The **CBI** assumes the role of highest Investigation body in India with one of its senior officers heading its exclusive **Inter-wing (the National Central Bureaus)** for collation of information and liaison with the world body.

INTERNATIONAL E-WASTE DAY

- ◎ **CONTEXT:** International E-Waste Day is held on October 14 every year as an opportunity to reflect on the impacts of e-waste.

The theme for the year 2022 is 'Recycle it all, no matter how small!'

What is E-waste?

- E-Waste is short for Electronic-Waste and the term is used to describe old, end-of-life or discarded electronic appliances. It includes their components, consumables, parts and spares.
- It is categorised into 21 types under two broad categories:
 - Information technology and communication equipment.



- Consumer electrical and electronics.

Agencies responsible

- National Green Tribunal (NGT)
- Central Pollution Control Board (CPCB)

Government Initiatives for E-waste management:

- Initiatives such as-
 - **Extended Producer Responsibility**
 - **Design for Environment**
 - **(3Rs) Reduce, Reuse, Recycle technology platform for linking the market facilitating the circular economy** aim to encourage consumers to correctly dispose of the e-waste.

SIX SPIDER SPECIES DISCOVERED ACROSS THE COUNTRY

◎ **CONTEXT:** Arachnologists from the Centre for Animal Taxonomy and Ecology (CATE), Christ College, Irinjalakuda in Kerala have recently discovered six new species of spiders from across the country.

◎ **ABOUT:**

- The new species of spiders were found from the Garo hills in Meghalaya, the Thar desert of Rajasthan, Wayanad Wildlife Sanctuary, Kottappara hills near Kothamangalam, Thumboormuzhi butterfly garden near Athirappilly, and the University of Calicut campus.

New spider species discovered:

■ Flat Spiders:

- **Siamspinops garoensis:** It was discovered in the Garo hills in Meghalaya. It belongs to the family of flat spiders, Selenopidae. This spider lives in the crevices of rocks on hills and its flat body is suitable for this mode of life.

■ Jumping spiders:

- **Afraflacilla miajlarensis:** It was discovered in the **Thar desert of Rajasthan**. It belongs to the family of jumping spiders (Salticidae). It is characterized by white fine hairs on a black head and black horizontal lines on the abdomen. This spider stays among dry leaf blades.
- **Afraflacilla kurichiadensis:** It was discovered from **Wayanad, Kerala**. It belongs to the family of jumping spiders (Salticidae). It is characterized by red patches around the eyes and white hairs on the abdomen. The bulged first pair of legs are also a special feature of this species. This spider lives in the moist deciduous forest of Kurichiyad.

■ Feather-legged spiders:

- **Philoponella rostralis:** It was discovered in **Kottappara hills near Kothamangalam, Kerala**. The species lacks a venom gland and belongs to the family of feather-legged spiders (Uloboridae).

■ Spiny-legged spiders:

- **Oxyopes peetham:** It has been discovered in **Thumboormuzhi butterfly garden, near the Athirappilly waterfalls, Kerala**. It belongs to the family of spiny-legged spiders (Oxyopidae). It is characterized by a yellowish body.
- **Oxyopes thumboormuzhiensis:** It has been discovered at **Calicut University campus, Kerala**. It belongs to the family of spiny-legged spiders (Oxyopidae). It aims to signify the locality where the spiders were spotted.



- These findings have been published in the latest volume of **Zootaxa (New Zealand)**, **Arthropoda Selecta (Russia)**, **British Journal of Arachnology (England)**, **Acata Arachnologica (Japan)** and **Serket (Egypt)**, international journals that deal with spider study.



SIX VARIETIES OF NEELAKURINJI IDENTIFIED IN WESTERN GHATS

- ◎ **CONTEXT:** Recently, a team of Experts has observed six varieties of Neelakurinji in Western Ghats which indicated the need to conserve the ecosystem for them and their habitat.

◎ **ABOUT**

- Neelakurinji** are flowers that are believed to bloom **every 12 years**.
- They grow at an altitude of 1300 to 2400 metres.
- Neelakurinji or 'Strobilanthes kunthiana' blooms in 40 or so varieties, a majority of them being **blue in colour**.
- '**Neela**' literally translates to '**blue**' and **kurinji** is the name given to it by the **tribals of the area**.
- Last seen in 2018, the time for viewing them begins in **August** and lasts up **to October**.
- In Munnar District, these flowers bloom across the region of **Kovilur, Kadavari, Rajamala and Eravikulam National Park**.
- Alongside **Strobilanthes kunthiana**, the types of neelakurinji flowers that have been identified from the hill ranges includes;
 - Strobilanthes anamallai,
 - Strobilanthes heyneanus,
 - Strobilanthes pulneyensis, and
 - Strobilanthes neoasper.



Prime Minister **Narendra Modi** also referenced the neelakurinji in his **Independence Day speech in 2018**, a year when the neelakurinji was in bloom.

- All these neelakurinji species are endemic to the **Western Ghats** and spread over nearly 200 acres of the Kallippara hills.
- In fact, the neelakurinji population here can be considered one of the biggest of the species after the **protected areas of Munnar**.

JAPAN SEEKS GI TAG FOR NIHONSHU, AN ALCOHOLIC BEVERAGE

- ◎ **CONTEXT:** The Embassy of Japan, New Delhi, has filed an application seeking a Geographical Indication (GI) tag for nihonshu/Japanese sake, an alcoholic beverage.

What is Nihonshu?

- Though usually referred to as “Sake”, its official name is “Nihonshu” in Japan.
- “Nihonshu” means a liquid that is produced in Japan and made by fermenting and filtering rice, koji, and water.
- People traditionally drink nihonshu on special occasions, such as festivals, weddings or funerals, but it is also consumed on a daily basis.
- Thus, it is an integral part of the lifestyle and culture in Japan.

Microbes used for brewing Nihonshu:

- **Koji mould:** Convert rice starch into sugars
- **Yeast:** Convert sugar into alcohol
- **Lactic acid bacteria:** Prevent bacterial growth of other microbes

Process of making Nihonshu:

- For making nihonshu **three main raw materials: Rice, koji-kin (a type of fungal spore) and water – are required.**
- The **rice and koji used** should **originate in Japan.**
- The production of nihonshu follows an **alcoholic fermentation** method called parallel **multiple fermentation** and involves the raw material treatment, koji making, starter culture-making, mash making, pressing, heat sterilisation and bottling.

LIVING PLANET REPORT 2022

- ◎ **CONTEXT:** Recently, the World Wide Fund for Nature (WWF) released the Living Planet Report for the year 2022.

The Living Planet Report:

- Living Planet Report is **WWF’s** flagship publication. It is released every **two years**.
- **Objective:** It is a comprehensive study of trends in **global biodiversity** and health of the planet. It tracks changes in the relative abundance of wild species populations across the globe.
- **Changes from last Report:**
 - The Living Planet Index (LPI) is continually changing with **838 new species** and 11,011 new populations being added to the dataset since the **2020 LPR** was released.

The **Living Planet Index (LPI)** is a measure of the state of the world’s biological diversity based on population trends of vertebrate species from terrestrial, freshwater and marine habitats.

The LPI was adopted by the **Convention of Biological Diversity (CBD)** as an indicator of progress towards its 2011-2020 targets.

- There has been a significant increase in the **number of fish species (481)** that have been added to the Living Planet Report.

Key highlights: (Addressing Environment & Biodiversity)

- **Decline in Population:**
 - There has been a **69 per cent decline** in the wildlife populations of mammals, birds, amphibians, reptiles and fish, across the globe in the last 50 years.

- The **freshwater populations have declined the most**, with an average 83% decline between 1970 and 2018.
- The IUCN Red List shows **cycads, an ancient group of seed plants, are the most threatened species**, while corals are declining the fastest, followed by amphibians.
- **Region wise assessment:**
 - The highest decline (94 per cent) was in Latin **America and the Caribbean region**.
 - **Africa** recorded a 66 per cent fall in its wildlife populations from 1970-2018.
 - **Asia Pacific's** monitored populations fell by 55%.
 - **Southeast Asia** is the region where species are most likely to face threats at a significant level.
 - **The Polar Regions and the east coast of Australia and South Africa** showed the highest impact probabilities for climate change, driven in particular by impact on birds.
- **Mangroves:**
 - Mangroves continue to be lost to aquaculture, agriculture and coastal development at a rate of **0.13 per cent per year**.
 - Mangrove-loss represents **loss of habitat for biodiversity** and the loss of ecosystem services for coastal communities.
 - Around 137 square kilometres of the **Sundarbans mangrove forest** in **India and Bangladesh** has been eroded since 1985, reducing land and ecosystem services for many of the 10 million people who live there.
- **Corals:**
 - About **50% of warm water corals have already been lost** and a warming of 1.5 degrees Celsius will lead to a loss of **70-90% of warm water corals**.
 - **The Bramble Cay melomys**, a small Australian rodent, was declared extinct after sea-level rise.
- **Sharks:**
 - The global abundance of **18 of 31 oceanic sharks has declined by 71% over the last 50 years** and the report said that by 2020 three-quarters of sharks and rays were threatened with extinction.
- **Others:**
 - Only 37% of **rivers** longer than 1,000km remain free-flowing over their entire length.
 - 41% **land-use change** is the biggest current threat to nature.
 - Report says action is needed to **reverse biodiversity loss by 2030 and keep global warming to 1.5°C**.
 - By moving to sustainable, healthy, and culturally appropriate diets we can **reduce agricultural land** use by 41% and wildlife loss by up to 46%.

Report highlights for India:

- **Vulnerability of Biospheres:** The **Himalayan region** and the **Western Ghats** are some of the most vulnerable regions in the country in terms of biodiversity loss, and where increased biodiversity loss is expected in future if temperatures are to increase.
- **Indicators of Ecosystem health are in Danger:** India has seen a decline in population of the likes of honeybees and 17 species of freshwater turtles in this period.

| Anthropogenic causes: | Threats: |
|--|--|
| <ul style="list-style-type: none"> • Habitat loss and barriers to migration routes • Land-use change is still the biggest current threat to nature • Human-induced climate change and biodiversity losses • Agriculture is the most prevalent threat to amphibians. | <ul style="list-style-type: none"> • WWF identified six key threats to biodiversity: agriculture, hunting, logging, pollution, invasive species and climate change to highlight 'threat hotspots' for terrestrial vertebrates. • Climate change in India will impact key areas, such as water resources, agriculture, natural ecosystems, health and the food chain. |

SECTION: E
(MISCELLANEOUS)

CURRENT AFFAIRS

RISHI SUNAK BECOMES BRITAIN'S FIRST NON-WHITE PRIME MINISTER

- © **CONTEXT:** Recently, Rishi Sunak was elected as Britain's first Indian-origin Prime Minister, scripting an impressive political comeback in British politics. This has shown the diversity in Modern day Britain and is expected to strengthen India-UK relations.

The Indian Diaspora

- The Indian Diaspora in the UK is one of the largest ethnic minority communities in the country, with the 2011 census recording approximately 5 million people of Indian origin in the UK equating to almost 1.8% of Britain's population.
- **Economy:** Indians contribute **6%** of the UK's GDP.
- Indian diaspora-owned companies with combined revenue of 36.84 billion pounds **employ over 1, 74,000 people** and pay over 1 billion pounds in Corporation Tax.
- **Politics:** In 2019, the British House of Commons had 15 members of parliament of Indian origin.

- © **ABOUT:**
- Rishi Sunak, 42 was elected **Conservative Party leader** and the youngest British **Prime Minister** in 210 years.
 - He is also the **First Non-white person** elected as the Prime Minister of Britain of Hindu origin.



Cultural Influence:

- There has been a gradual mainstreaming of Indian culture and absorption of Indian cuisine, cinema, languages, religion, philosophy, performing arts, etc.
- The **Nehru Centre is the cultural wing** of the High Commission of India in the UK which was established in 1992.
- 2017 was celebrated as the **India-UK year of Culture** to mark the 70th anniversary of Indian independence.

PAKISTAN IS OUT OF FATF 'GREY LIST' ON TERROR FUNDING

- © **CONTEXT:** Pakistan won a major reprieve, as the FATF, an international watchdog on terror financing and money laundering agreed to remove Pakistan's name from the 'grey list'.

More on news:

- **Financial Action Task Force** has agreed to remove Pakistan's name from the list of countries under "increased monitoring".
- FATF has "welcomed Pakistan's significant progress" in its Anti-Money Laundering/Combating the Financing of Terrorism (AML/CFT) mechanisms.
- **India has protested Pakistan's lack of action** against cross-border terror groups responsible for attacks on India.

What are the Black List and Grey List? Those are two types of lists that FATF maintains. A blacklist is given to the countries that FATF considers uncooperative tax havens. These countries are known as Non-Cooperative Countries or Territories (NCCTs). A Grey list is a warning given to the country that it might come on the Black list. But even when a country comes under a grey list it faces many problems like problems in getting loans Economic sanctions Reduction in trade.

- India's other neighbour, **Myanmar has been moved from the grey list to the "black list"** due to actions by the military leadership after the 2021 coup and will **face even more severe financial sanctions and an inability to procure IMF, World Bank, and ADB loans.**

Financial Action Task Force (FATF):

- It was established in July 1989 by a **Group of Seven (G-7)** Summit in Paris, initially to examine and develop measures to **combat money laundering**.
- In October 2001, the FATF expanded its mandate to incorporate efforts to **combat terrorist financing**, in addition to money laundering.
- Since its inception, the FATF has operated under a fixed life span, requiring a specific decision by its Ministers to continue.
- The current mandate of the **FATF (2012-2020)** was adopted at a Ministerial meeting in April 2012.
- Its secretariat is housed administratively at the OECD.
- FATF was not formed as a formal international Organisation. Rather, the FATF is a task force composed of member governments who agree to fund the FATF temporarily with specific goals and projects.

How many countries are there in the FATF?

- The FATF, which reportedly comprises 36 countries and two regional organizations (European Commission and Gulf Cooperation Council), works to identify national-level vulnerabilities with the aim of protecting the international financial system from misuse.

SWADESH DARSHAN 2

◎ **CONTEXT:** **The Government is going to launch the 'Swadesh Darshan 2' Scheme with the sites being selected from 15 States across the country to move forward from theme-based destinations to Potential tourist destinations.**

◎ **ABOUT** **The 'Swadesh Darshan 2': (The revamped scheme)**

- The Scheme is based on sites that have potential as tourist places and are to be launched in a phased manner.
- The first phase of the scheme is going to start in January 2023.
- Aim: The objective will move from 'theme-based tourist' circuits and focuses on 'revving up destination tourism'.
- The scheme has been revamped with the mantra of "vocal for local".
- Fund allocation: The Swadesh Darshan scheme is 100% centrally funded.
- **Sites selected:**
 - Fifteen States are part of the first phase which includes Madhya Pradesh, Karnataka, Tamil Nadu, Uttar Pradesh, and Maharashtra.
 - Two destinations from each State have been identified by the Ministry of Tourism.
- Some of the prominent places identified are;
 - Jhansi and Prayagraj in Uttar Pradesh,

- Gwalior, Chitrakoot,, and Khajuraho in Madhya Pradesh and
- Ajanta and Ellora in Maharashtra.
- Earlier the Swadesh Darshan Scheme 2.0 has been revived to develop sustainable and responsible destinations with a tourist and destination-centric approach.

Need of the Initiative:

- **Employment generation:** According to the third Tourism Satellite Account for 2017-18, 2018-19, and 2019-20, the contribution of tourism to the employment of the country is 14.78%, 14.87 %, and 15.34 % respectively.
- **Promoting local culture:** Local community would immensely benefit as It would help create jobs and that would lead to skill development among the natives.
- **More options to explore:** the destination divisions such as adventure tourism, beach tourism, wellness tourism, eco-tourism, and several other categories would help segregate the tourists as per their preference.

GLOBAL HUNGER INDEX, 2022 SHOWS A 'SERIOUS' SITUATION FOR INDIA

◎ **CONTEXT:** In the recently released Global Hunger Index for year 2022, India ranked 107 out of 121 countries.

- ◎ **ABOUT**
- It is an **Annual report**, jointly published by Concern Worldwide and Welthungerhilfe.
 - It was first produced in It is published **every October**. The 2022 edition marks the **17th edition** of the GHI.
 - **Aim:** To comprehensively measure and track hunger at the global, regional, and country levels.
 - **Scoring:**

Calculation: It is calculated on the basis of four indicators:

- **Undernourishment:** Share of the population with insufficient caloric intake.
- **Child Wasting:** Share of children under age five who have low weight for their height, reflecting acute under nutrition.
- **Child Stunting:** Share of children under age five who have low height for their age, reflecting chronic under nutrition.
- **Child Mortality:** The mortality rate of children under the age of five.

- Based on the values of the four indicators, the GHI determines hunger on a **100-point scale where 0** is the best possible score (no hunger) and 100 is the worst.
- Each country's GHI score is classified by severity, from low to extremely alarming.

Key Highlights of the Index:

- **India (107)** ranked below Sri Lanka (64), Nepal (81), Bangladesh (84), and Pakistan (99).
- **Afghanistan (109)** is the only country in South Asia that performs worse than India on the index.
- India's score of **1** places it in the '**serious**' category.
- China is among the countries collectively ranked between 1 and 17 having a score of less than five.
- The **2022 GHI score** for the world is considered "moderate", but 18.2 in 2022 is only a slight improvement from 19.1 in 2014.

- The reasons behind drop in position of several developing Countries remains to be the overlapping crises such as conflict, climate change, the economic fallout of the **COVID-19** pandemic as well as **the Ukraine war**, which has increased global food, fuel, and fertiliser prices.



India's performance on several Indicators:

- India's child wasting rate (low weight for height), at 19.3%, is worse than the levels recorded in 2014 (15.1%) and even 2000 (17.15%), and is the highest for any country in the world and drives up the region's average owing to India's large population.
- Prevalence of undernourishment, which is a measure of the proportion of the population facing chronic deficiency of dietary energy intake, has also risen in the country from 14.6% in 2018-2020 to 16.3% in 2019-2021.
- India has shown improvement in the other two indicators - child stunting has declined from 38.7% to 35.5% between 2014 and 2022 and child mortality has also dropped from 4.6% to 3.3% in the same comparative period.

BOMBAY STOCK EXCHANGE'S ELECTRONIC GOLD RECEIPT

- ◎ **CONTEXT:** The Bombay Stock Exchange (BSE) has received approval from the Securities and Exchange Board of India (Sebi) for its Electronic Gold Receipt (EGR), India's first spot physical gold exchange product.

What Is An EGR?

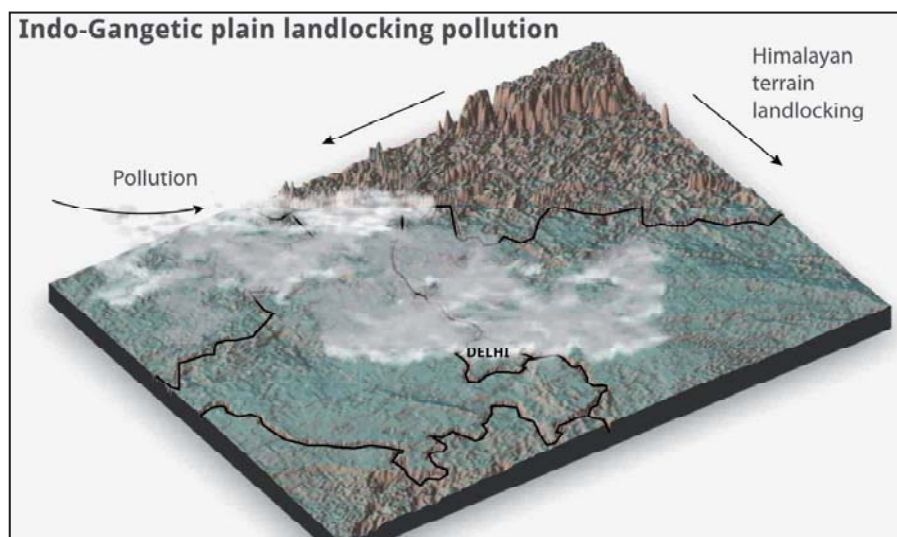
- EGRs are depository gold receipts traded on the stock exchanges. They are held in Demat accounts, just like shares.
- For EGRs, the physical gold is sourced through imports, accredited domestic refineries, or designated delivery centres.
- The buyer could convert the physical gold into an EGR by depositing the yellow metal at the designated delivery centre. After the gold is sourced, a depository receipt is created for trading on BSE.
 - For example, a buyer can sell the EGR or convert it to physical gold.

SECTION: F
(LOCATION IN NEWS)

CURRENT AFFAIRS

MAUNA LOA

- Rising gradually to more than 4 km (2.5 mi) above sea level, Hawaii's Mauna Loa is the largest active volcano on Earth.
- Mauna Loa has erupted 33 times since 1843 and when it erupted in 1950, the lava flowed 15 miles in three hours.
- It is located on the south-central part of the island of Hawaii, Hawaii state, U.S., and a part of Hawaii Volcanoes National Park.
- One of the largest single mountain masses in the world, Mauna Loa rises to 13,677 feet (4,169 metres) above sea level and constitutes half of the island's area.



REGION RULED BY KANISHKA

- Under Kanishka's rule, at the height of the dynasty, Kushan controlled a large territory ranging from the Aral Sea through areas that include present-day Uzbekistan, Afghanistan, and Pakistan into northern India as far east as Benares and as far south as Sanchi.

INDUS RIVER SYSTEM

- The **Indus river basin** has six rivers- **Indus, Jhelum, Chenab, Ravi, Beas and Sutlej**.
- It originates from Tibet and flowing through the Himalayan ranges to enter Pakistan, ending in the south of Karachi.
- The Indus originates from the Bokhar Chu (glacier) in northern slopes of Mt. Kailash (6714m).
- It drains the largest number of glaciers and mountain slopes of the Karakorum, Ladakh, Zaskarand Himalayan Ranges.
- Originating from the Kailash Mountain, it flows in a constricted valley north-westward through Tibet, where it is called as **Singi Khamban or Lion's mouth**.
- In ladakh it follows a long nearly straight course between the Ladakh range and the **Zaskar range**.
- In the first 480 km, it flows along the northern flank of the Zaskar range over a flat country at heights over 3200 m where it receives River Zaskar below Leh.

- Suru and Dras are the other left bank tributaries which join the Indus near Kargil. Moving north-westward, the Indus is joined by the Shyok-Nubra tributaries.
- These tributaries arise from the Siachin Glacier (Karakoram Range).
- At Skardu, at a little distance below the Shyok, the Shigar River meets River Indus. Gilgit is another important tributary which comes from the west to join Indus. Downward; the Indus crosses the central Himalayan range through a huge synclinal gorge.
- The River passes by the Nanga-Parvat and turns south-west to enter Pakistan.



LOTHAL

- World's oldest dockyard, Lothal, is all set to get heritage complex as Prime Minister Narendra Modi reviewed the construction of the National Maritime Heritage Complex (NMHC).
- Lothal was one of the southernmost sites of the Indus Valley civilization, located in the Bhāl region of what is now the state of Gujarat.
- The port city is believed to have been built in 2,200 BC.
- Lothal was a thriving trade centre in ancient times, with its trade of beads, gems and ornaments reaching West Asia and Africa.
- Lothal was nominated in April 2014 as a UNESCO World Heritage Site, and its application is pending on the tentative list of UNESCO.
- Its heritage value is comparable to other ancient port-towns around the world – including Xel Ha (Peru), Ostia (Port of Rome) and Carthage (Port of Tunis) in Italy, Hepu in China, Canopus in Egypt, Gabel (Byblos of the Phoenicians), Jaffa in Israel, Ur in Mesopotamia, Hoi An in Vietnam, as per the dossier.
- In the region, it can be compared with other Indus port towns of Balakot (Pakistan), Khirasa (in Gujarat's Kutch) and Kuntasi (in Rajkot).

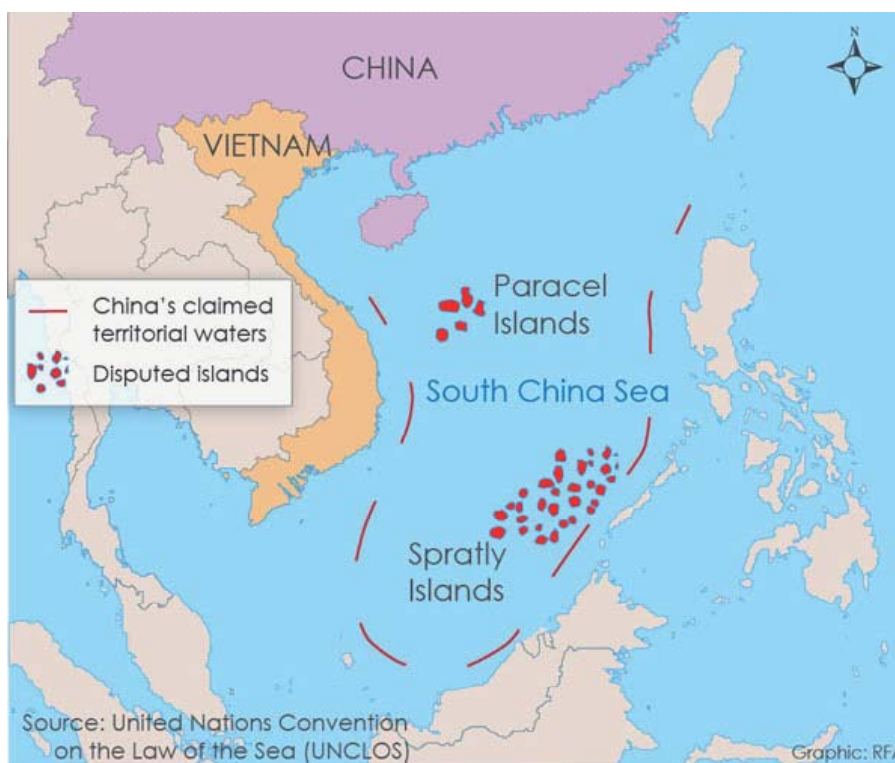


CHINA'S 'NINE-DASH LINE'

- These nine dash lines are not geographical boundaries but are interpreted by China to advance its claims.
- The line runs as far as 2,000km from the Chinese mainland to within a few hundred kilometres of the **Philippines, Malaysia and Vietnam**.
- The nine-dash line is used by China to illustrate claims to the South China Sea (SCS).
- The countries are bordering SCS are:

| | | |
|---------------------------------------|-----------------|-----------|
| ◦ Peninsular Malaysia | ◦ Singapore | ◦ Vietnam |
| ◦ Thailand (via the Gulf of Thailand) | ◦ East Malaysia | ◦ China |
| ◦ Philippines | ◦ Brunei | ◦ Brunei |
| | ◦ Indonesia | ◦ Taiwan |

Why in news? Indonesia rejects any negotiations, says China's 'nine-dash line' puts economic interest at risk

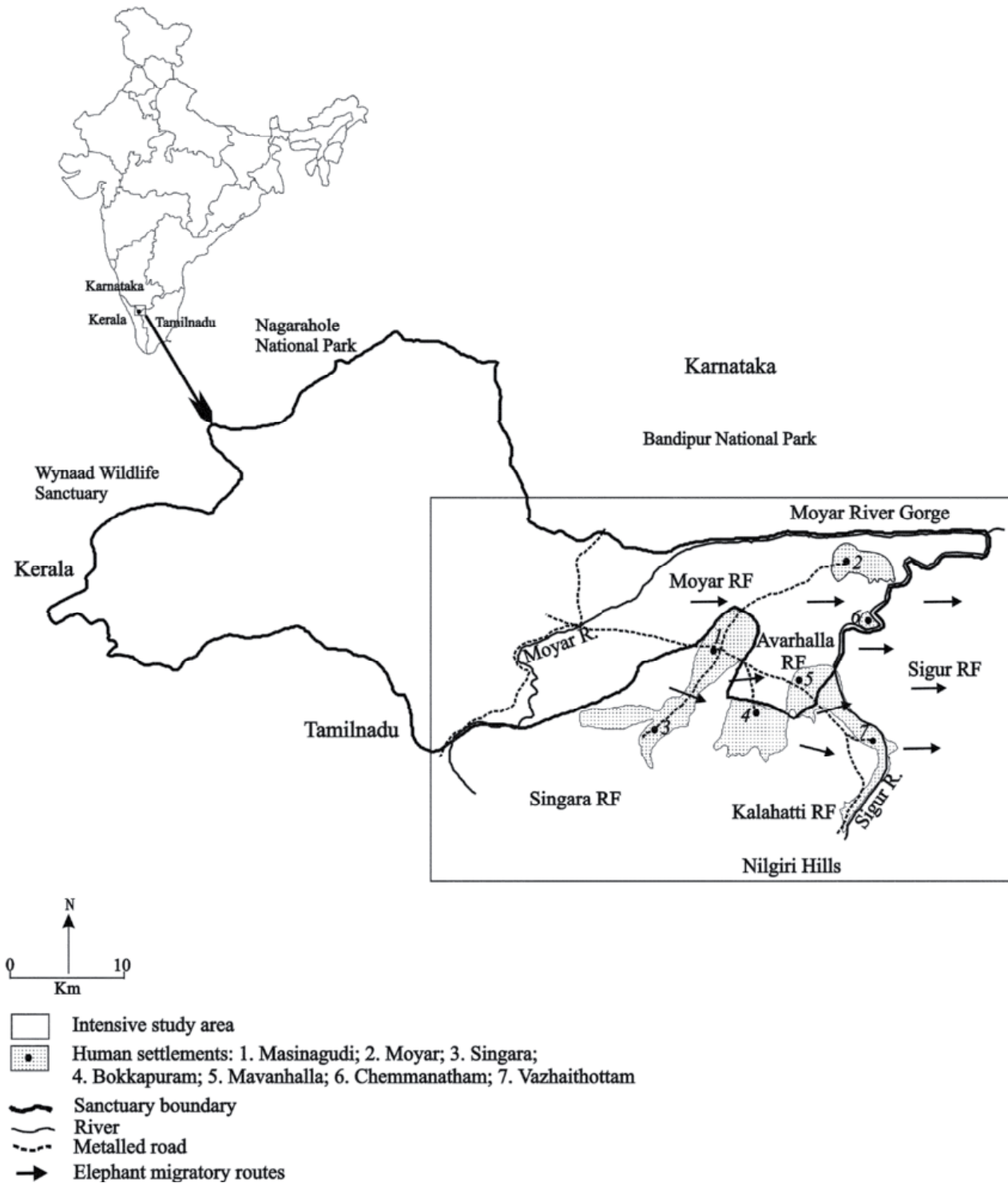


MUDUMALAI TIGER RESERVE

- Mudumalai Tiger Reserve is located in the Nilgiris District of Tamil Nadu state spread over 321 sq.km. at the tri-junction of three states, viz, **Karnataka, Kerala and Tamil Nadu**.
- It plays a unique role by forming part of the **Nilgiris Biosphere Reserve**, the first Biosphere Reserve in India, declared during 1986.
- It has a common boundary with;
 - **Wyanad Wildlife Sanctuary (Kerala)** on the West
 - **Bandipur Tiger Reserve (Karnataka)** on the North

OCTOBER, 2022

- **Nilgiris North Division** on the South and East
- **Gudalur Forest Division** on the South West
- Presently, there are 53 tiger reserves in India
 - Uttar Pradesh's Ranipur Tiger Reserve has become the 53rd tiger reserve of India.
 - Besides this, it is also the fourth tiger reserve in Uttar Pradesh. Apart from Ranipur, the state has three tiger reserves– Dudhwa, Pilibhit and Amangarh.



BLACK SEA

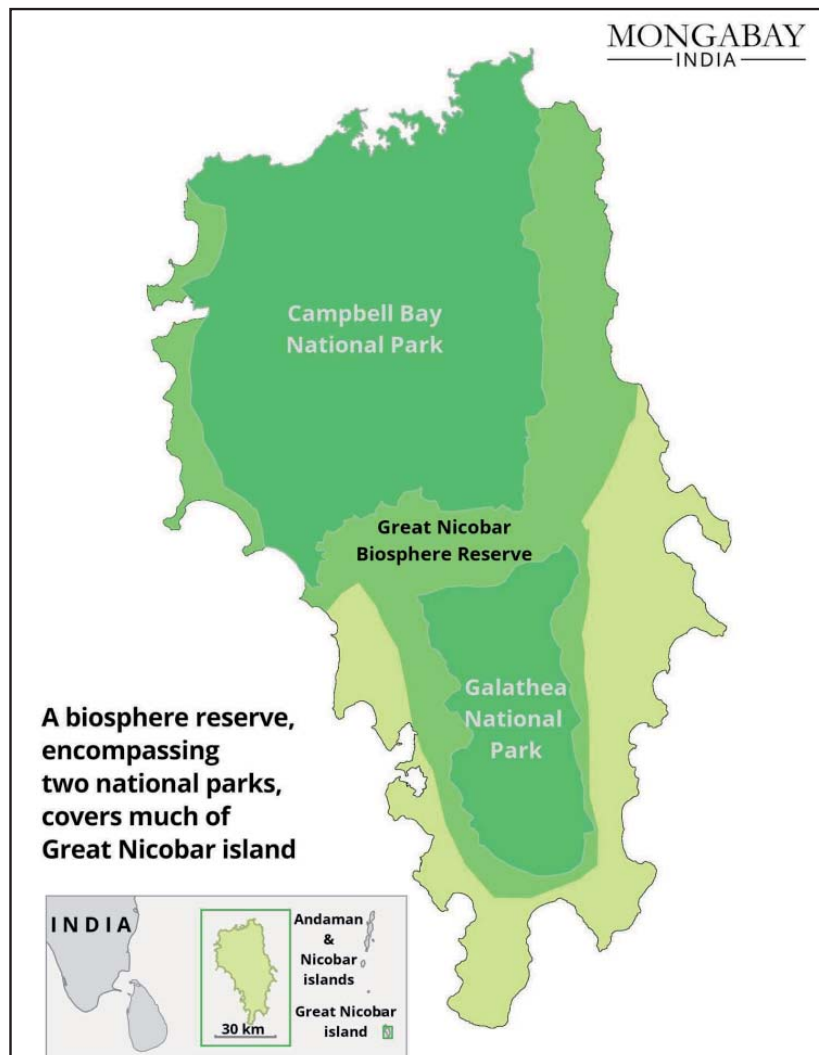
- Russia re-joined the Black Sea Grain deal.
- The Black Sea is an inland sea between Eastern Europe and Western Asia of major geopolitical importance.



- Russia, Ukraine, Romania, Bulgaria, Turkey, and Georgia have Black Sea coastlines.
- Most important ports serving it.
 - Port of Constanța (Romania)
 - Samsun Port (Turkey)
 - Port of Odessa (Ukraine)
 - Batumi Seaport (Georgia)
 - Port Varna (Bulgaria)

GREAT NICOBAR BIOSPHERE RESERVE

- Great Nicobar is the southernmost island of the Nicobar Islands Archipelago
- **Great Nicobar Biosphere Reserve** is part of the UNESCO's World Network of Biosphere Reserves.
- It is home to very rich ecosystems, including 650 species of angiosperms, ferns, gymnosperms, and bryophytes, among others.



- The reserve encompasses two national parks:
 - **Campbell Bay National Park**
 - **Galathea National Park** (critical leatherback turtle nesting site)
- **Important Species:** Nicobar long-tailed macaque, Crab-eating Macaque, Nicobar Tree Shrew, Dugong, Nicobar Megapode, Serpent Eagle, salt water crocodile, marine turtles and Reticulated Python.

THUNDI BEACH AND KADMAT BEACH

- 'Blue Flag' for 2 more Indian Beaches India's two more beaches Thundi Beach and Kadmat Beach in Lakshadweep have bagged the coveted 'Blue Flag' certification.
 - With this, India now has a total of 12 'blue beaches'.
- The remaining 10 beaches are Shivrajpur (Gujarat), Ghoghla (Diu), Kasarkod and Padubidri (Karnataka), Kappad (Kerala), Rushikonda (Andhra Pradesh), Radhanagar (Andaman and Nicobar), Golden (Odisha), Kovalam (Tamil Nadu) and Eden (Puducherry).
- Blue Flag certification
- Spain has the highest number of Blue beaches with 614 as of 2021, followed by Greece with 545 and Turkey with 519.

SECTION: G

(CONCEPTS)

CURRENT AFFAIRS

| Concept | Meaning |
|--|--|
| Lunar Eclipse | <ul style="list-style-type: none"> Lunar eclipses happen when Earth positions itself between the sun and the moon, casting a shadow across the lunar surface. They can only occur during a full moon. There are three types of lunar eclipses: <ul style="list-style-type: none"> ► Total lunar eclipse: Earth's shadow is cast across the entire lunar surface. ► Partial lunar eclipse: Only part of the moon enters Earth's shadow, which may look like it is taking a "bite" out of the lunar surface. Earth's shadow will appear dark on the side of the moon facing Earth. ► Penumbral lunar eclipse: The faint outer part of Earth's shadow is cast across the lunar surface. The recent eclipse (Nov. 8) is known as the Beaver Blood Moon lunar eclipse. The eerie red appearance is caused by sunlight interacting with Earth's atmosphere. |
| Vertical reservation AND Horizontal reservation | <p>Vertical reservation</p> <ul style="list-style-type: none"> Reservation for Scheduled Castes, Scheduled Tribes, and Other Backward Classes is referred to as vertical reservation. It applies separately for each of the groups specified under the law. <p>Horizontal reservation</p> <ul style="list-style-type: none"> Horizontal reservation refers to the equal opportunity provided to other categories of beneficiaries such as women, veterans, the transgender community, and individuals with disabilities, cutting through the vertical categories. |
| Partial recession | <ul style="list-style-type: none"> Recession is "a significant decline in economic activity that is spread across the economy and lasts more than a few months." Partial recession is a situation in which some sectors struggles, while others continue the activity at a relatively reasonable level. |
| Intercontinental Ballistic Missile (ICBMs) | <ul style="list-style-type: none"> ICBMs are ballistic missiles with a minimum range of about 5,500 kilometres (3,400 miles). <ul style="list-style-type: none"> ► Some are capable of travelling 10,000 km (6,200 miles) or farther. They are chiefly designed for nuclear weapons delivery. Modern ICBMs can carry multiple warheads, each able to it a separate aimpoint, on independently targetable reentry vehicles (MIRVs). ICBMs can be launched from multiple platforms. |
| El Niño | <ul style="list-style-type: none"> El Niño is a climate pattern that describes the unusual warming of surface waters in the eastern tropical Pacific Ocean. <ul style="list-style-type: none"> ► El Nino is the "warm phase" of a larger phenomenon called the El Nino-Southern Oscillation (ENSO). ► La Nina, the "cool phase" of ENSO, is a pattern that describes the unusual cooling of the region's surface waters. <p>El Niño has an impact on:</p> <ul style="list-style-type: none"> ► ocean temperatures ► speed and strength of ocean currents ► health of coastal fisheries ► local weather (from Australia to South America and beyond) |

| | |
|---|---|
| | <p>El Nino-Southern Oscillation (ENSO)</p> <ul style="list-style-type: none"> • ENSO is the interaction between the atmosphere and ocean in the tropical Pacific. • It is a series of linked weather and ocean-related phenomena. |
| Invasive Species | <ul style="list-style-type: none"> • An invasive species is an organism that is not indigenous, or native, to a particular area. • Characteristics: A species- <ul style="list-style-type: none"> ➤ must adapt to the new area easily ➤ must reproduce quickly ➤ must harm property, the economy, or the native plants and animals of the region • Important invasive flora and fauna in India: African apple snail, Papaya Mealy Bug, Cotton Mealy Bug, Amazon sailfin catfish, Black Wattle, Water Hyacinth, Black Mimosa, Parthenium/ Congress grass, Parthenium, Cannibal Snail / Rosy wolf snail, Indian Bullfrog, Lantana camara. |
| Inflation-targeting Regime | <ul style="list-style-type: none"> • The Union government, in consultation with the RBI, fixes the inflation target for the central bank every five years. <ul style="list-style-type: none"> ➤ It had fixed it at 4 percent plus/ minus 2 percent (upper limit 6 per cent, lower limit 2 per cent) for the period August 5, 2016 to March 31, 2021, and retained it for the next five years ending March 31, 2026. • The framework agreement requires the RBI to submit a report to the Union government if it is in breach of the inflation targets for three consecutive quarters. • The RBI is by law responsible for maintaining price stability. • Instruments to control inflation: Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), Open Market Operations (OMOs), Market Stabilisation Scheme (MSS), Repo Rate, Reverse Repo Rate, Liquidity Adjustment Facility (LAF), Marginal Standing Facility (MSF) Bank Rate. |
| Formation of Cyclone | <ul style="list-style-type: none"> • Cyclone is system of winds rotating inwards at a high speed with the area of low pressure in the middle. • Cause: Each individual cyclonic event is the cumulative result of several processes including evaporation, cloud formation, winds, the Coriolis effect, and the formation of a low-pressure area. • The cyclone forms around the low-pressure area, called a depression, along a zone of cold and warm air exchange called the 'eye wall'. • The eye is the central and calmest part of the cyclone. • From this eye wall, long, arching cloud and rain systems called rainbands spiral outwards, which bring alternating periods of intense rain and calm spells during a cyclone. |
| Off-budget borrowings by States | <ul style="list-style-type: none"> • Off-budget borrowings refer to loans taken by state government entities, special purpose vehicles, etc, where principal and interest would be repaid from state government's own budget, instead of the cash flows or revenues generated by the borrowing entity. • Such borrowings bypass the net borrowing ceiling fixed for states in a fiscal year by routing loans outside state budget through government owned companies or statutory bodies. • Since the responsibility for repayment lies with states, it adversely impacts their revenue and fiscal deficit. |
| Genetic modification (GM) of crops | <ul style="list-style-type: none"> • GM is a technology that involves inserting DNA into the genome of an organism. • To produce a GM plant, new DNA is transferred into plant cells. |

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| | <ul style="list-style-type: none"> Usually, the cells are then grown in tissue culture where they develop into plants. The new DNA becomes part of the GM plant's genome which the seeds produced by these plants will contain. The characteristics of all living organisms are determined by their genetic makeup and its interaction with the environment. The genetic makeup of an organism is its genome, which in all plants and animals is made of DNA. The genome contains genes, regions of DNA that usually carry the instructions for making proteins. It is these proteins that give the plant its characteristics. <ul style="list-style-type: none"> ► For example, the colour of flowers is determined by genes that carry the instructions for making proteins involved in producing the pigments that colour petals. |
| Electronic Gold Receipt (EGR) | <ul style="list-style-type: none"> EGRs are depository gold receipts traded on the stock exchanges. They are held in Demat accounts, just like shares. EGR trading is similar to buying and selling stocks. For EGRs, the physical gold is sourced through imports, accredited domestic refineries, or designated delivery centres. After the gold is sourced, a depository receipt is created for trading on BSE. <ul style="list-style-type: none"> ► For example, a buyer can sell the EGR or convert it to physical gold. In India, electronic gold trading happens through gold derivatives or gold exchange-traded funds (ETFs) on stock exchanges. EGR is the first spot physical gold exchange trading product. |
| Cyber Terrorism | <ul style="list-style-type: none"> Cyberterrorism is often defined as any premeditated, politically motivated attack against information systems, programs and data that threatens violence or results in violence Examples of cyberterrorism: Disruption of major websites, Unauthorized access, Disruption of critical infrastructure systems, Cyberespionage Present Law: The Information Technology Act, 2000 |
| Metaverse | <ul style="list-style-type: none"> The metaverse is a concept of a persistent, online, 3D universe that combines multiple different virtual spaces. The metaverse will allow users to work, meet, game, and socialize together in these 3D spaces. The metaverse combines aspects of physical reality, virtual reality (VR), augmented reality (AR), artificial intelligence (AI), social media, online gaming and cryptocurrencies, allowing users to interact virtually. In his 1992 science fiction novel "Snow Crash," Author Neal Stephenson coined the term "metaverse". |
| Uniform Civil Code (UCC) | <ul style="list-style-type: none"> Uniform Civil Code refers to a common set of laws governing personal matters such as marriage, divorce, adoption, inheritance, and succession. The UCC comes under Article 44 of the Constitution of India. It proposes to introduce personal laws that would apply to all citizens equally, irrespective of their religion, gender, caste, etc. Governance of personal laws: <ul style="list-style-type: none"> ► Hindu: Vedas, Smritis, and Upanishads and modern concepts of justice, equality, conscience, etc. ► Muslim: Quran and Sunnah, Ijma and Qiyas ► Christian: scriptures (Bible), traditions, reason, and experience |

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| Environmental, social and governance (ESG) | <ul style="list-style-type: none"> Environmental, social and governance (ESG) is a term used to represent an organization's corporate financial interests that focus mainly on sustainable and ethical impacts. While ethical, sustainable and corporate governance are considered non-financial performance indicators, their role is to ensure accountability and systems to manage a corporation's impact, such as its carbon footprint. |
| Circular Economy | <ul style="list-style-type: none"> A circular economy entails markets that give incentives to reusing products, rather than scrapping them and then extracting new resources. In practice, it implies reducing waste to a minimum. <ul style="list-style-type: none"> When a product reaches the end of its life, its materials are kept within the economy wherever possible. These can be productively used again and again, thereby creating further value. |
| RBI's e-rupee (digital rupee) | <ul style="list-style-type: none"> E-rupee or digital rupee is a digital version of the Indian rupee that the RBI is exploring. Digital rupee will be issued and controlled by the RBI, but commercial banks will distribute it. The RBI has proposed to issue two versions – <ul style="list-style-type: none"> wholesale for interbank settlement retail for the public: This version is token based Current payment infrastructure: Real Time Gross Settlement (RTGS), National Electronic Fund Transfer (NEFT), Unified Payments Interface (UPI) |
| Free Trade agreements (FTAs) | <ul style="list-style-type: none"> Free Trade agreements (FTAs) are signed between nations to promote ease of trade and investment by removing restrictions such as tariffs, import quotas, and export limits. India has been actively engaging with other countries to enhance international trade relations and has signed thirteen FTAs with its till date. So far, India has signed 13 Free Trade Agreements (FTAs) with its trading partners |
| Supreme Court Collegium | <ul style="list-style-type: none"> The Supreme Court collegium is a five-member body, which is headed by the incumbent Chief Justice of India (CJI) and comprises the four other seniormost judges of the court at that time. The collegium system evolved out of a series of judgments of the Supreme Court that are called the "Judges Cases". They consider the elevation of Chief Justices/Judges of High Court to Supreme Court, elevation of Judges of High Courts as Chief Justices and elevation of Judges. In case of difference of opinion, the majority view will prevail. |
| Click chemistry | <ul style="list-style-type: none"> Click chemistry is a way of building molecules like snapping Lego blocks together. It takes two molecules to click, so researchers refer to each one as click partners. The core of the click chemistry concept is the cultivation of a small set of reactions that are extremely ideal for working with organic molecules. |
| Foreign Currency Non-Resident (FCNR) Account | <ul style="list-style-type: none"> A Foreign Currency Non-Resident (FCNR) FD account is an option for NRIs who want to create a fixed deposit account in India. This account helps NRIs to keep their money earned abroad safe from any foreign exchange fluctuations. Any person who is an Indian Citizen and a non-resident under FEMA can open an FCNR account. |



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