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# NEWS JUICE MONTHLY

1<sup>st</sup> October to 31<sup>st</sup> October, 2022

Summary of The Hindu & The Indian Express along with News  
Background

POLITY  
&  
GOVERNANCE

# New Chief of Defence Staff appointment

Relevance: Prelims & Mains Paper II; Governance

## New CDS

- The Government recently announced the appointment of former Eastern Army Commander Lt. Gen. Anil Chauhan, 61, as the next Chief of Defence Staff (CDS).
- He has been appointed nine months after the untimely death of India's first CDS, Gen. Bipin Rawat in December 2021.
- His appointment is until further orders, or when he turns 65.

## Why was the post of CDS created?

- The post of CDS was created in 2019.
- Its mandate is to ensure "jointness" of the three services in operations, logistics, transport, training, support services, communications, repairs and maintenance, within three years of the first CDS assuming office.
- That ambition was disrupted by the death of Gen. Rawat, and then the delay in the appointment of his successor.

# What is Moonlighting?

**Relevance: Prelims & Mains Paper II; Governance**

## Meaning

- Moonlighting — or employees working for remuneration with entities other than their employers — has been a hot topic in recent months.
- During the pandemic, those with desk jobs had more time on their hands and thus it was easier to take on a few projects outside of work.

## Views of companies

- Recently, Wipro sacked 300 employees following the discovery that they were working for rival firms on the side, leading to conflict of interest.
- Infosys has warned staff against moonlighting, saying it could lead to termination.
- Swiggy announced a 'moonlighting policy' that allows employees "to pursue their passion for economic interests alongside their full-time employment."

## What does law say?

- Moonlighting is **not defined in any of the statutes in India**. However, there are enactments that deal with double employment.
- Section 60 of the Factories Act deals with restriction on double employment stating that **“No adult worker shall be required or allowed to work in any factory on any day on which he has already been working in any other factory, save in such circumstances as may be prescribed”**.
- However, **this enactment is applicable only to employees working in factories**.

## Punitive action against moonlighting

- **Unless an employer is able to prove that an employee acted against the interest of the company, Courts may not uphold severe punishment of termination of employment.**
- The Courts of law in India dealing with employment are **Writ Courts and Labour Courts**. These Courts exercise jurisdiction based on equity or fairness. Therefore, the Courts may lean in favour of the employee unless the contravention of the employee has led to serious prejudice and loss to the employer.
- The **Minister of State for Skill Development and Entrepreneurship, and Electronics and IT**, Rajeev Chandrasekhar said **that employers should not to suppress employees** who want to monetise, develop and demonstrate but also urged employees not to violate their agreements with employers.

# Why has the Election Commission frozen the Shiv Sena's symbol?

Relevance: Prelims & Mains Paper II; Polity

## Interim Order

- In an **interim order** passed, the Election Commission of India (ECI) froze the name and well known 'bow and arrow' election symbol of the Shiv Sena until the competing claims for recognition by the two rival factions is decided.
- Also, For the purposes of the current bye-elections, the order said, the two groups shall be allotted such different symbols as they may choose from the list of free symbols.

## Incidents in past

- When a prominent party splits, a tussle often ensues for its election symbol.
- The symbol is the fundamental connection of a party with voters.
- The last time the ECI took a similar decision was in October 2021, when it froze the 'Bungalow' election symbol of the Lok Janshakti Party (LJP). **The LJP had split in June 2021.**
- Before that, tussles over the election symbol had been witnessed in 2017 after the **Samajwadi Party (Cycle)** and the **AIADMK (Two leaves)** split.



## Para 15 of the Symbols Order, 1968

- Para 15 of the Symbols Order, 1968 — which has been cited by the ECI in the case of the Shiv Sena — states: “When the Commission is satisfied... that there are rival sections or groups of a **recognised political party** each of whom claims to be that party the Commission may, after taking into account all the available facts and circumstances of the case and hearing (their) representatives... and other persons as desire to be heard decide that **one such rival section or group or none of such rival sections or groups is that recognised political party** and the decision of the Commission shall be binding on all such rival sections or groups.”
- For splits in registered but **unrecognised parties**, the **ECI usually advises the warring factions to resolve their differences internally or to approach the court.**

## First case under 1968 order

- It was the **first split in the Indian National Congress in 1969.**
- Indira Gandhi’s tensions with a rival group within the party came to a head with the **death of President Dr Zakir Hussain on May 3, 1969.**
- The Congress old guard, led by K Kamaraj, Neelam Sanjiva Reddy, S Nijalingappa and Atulya Ghosh, known as the **Syndicate**, **nominated Reddy** for the post.
- Indira, who was the **Prime Minister**, **encouraged Vice-President VV Giri** to contest as an Independent, and called for a “conscience vote” in defiance of the whip issued by party president Nijalingappa.
- **After Giri won, Indira was expelled from the Congress, and the party split into the “old” Congress (O) led by Nijalingappa and the “new” Congress (J) led by Indira.**

-The “old” Congress retained the party symbol of a pair of bullocks carrying a yoke; the breakaway faction was given the symbol of a cow with its calf.

# Weapon system Branch at IAF

## Relevance: Prelims & Mains Paper II; Governance

### Why in news?

- The government has approved the creation of a Weapon System branch for officers in the Indian Air Force (IAF) which **will bring all weapon systems operators of the force under one roof.**
- This is the first time since Independence that a new operational branch is being created.

### Why?

- The new Weapon System Branch will include **manning for four specialised streams** of
  - **Surface to Surface missiles,**
  - **Surface to Air Missiles,**
  - **Remotely Piloted Aircraft and**
  - **Weapon system operators in twin and multi crew aircraft**
- Creation of the new branch would entail **unification of all weapon system operators** under one entity dedicated to the operational employment of all ground-based and specialist airborne weapon systems.



# Justice Chandrachud nominated as next Chief Justice of India



**Relevance: Prelims & Mains Paper II; Governance**

## Nomination

- Chief Justice of India U.U. Lalit nominated Justice D.Y. Chandrachud as his successor in a brief meeting held at the Supreme Court judges' lounge in the presence of all judges of the court.
- Chief Justice Lalit's recommendation to the government would start the process for appointment of Justice Chandrachud as the 50th Chief Justice of India.
- If the government approval comes through, Justice Chandrachud would be the CJI. His father, Justice Y.V. Chandrachud, was the 16th CJI and one of the longest serving.
- Chief Justice Lalit is scheduled to retire on November 8 at the end of a 74-day tenure. Justice Chandrachud is expected to be sworn in from November 9. He has a tenure of two years as Chief Justice until his retirement on November 11, 2024.

## Judicial career

- He was Additional Solicitor-General from 1998 until appointment to the Bombay High Court Bench.
- Justice Chandrachud began his career as a judge in the Bombay High Court on March 29, 2000.
- Thereafter, he was appointed as Chief Justice of the Allahabad High Court from October 31, 2013.
- He was appointed judge of the Supreme Court on May 13, 2016.

# Mulayam Singh Yadav

## Career

- Mulayam Singh Yadav (22 November 1939 – 10 October 2022) was an Indian politician, a socialist figure and the **founder of the Samajwadi Party**.
- He served **3 non-consecutive terms as the Chief Minister of Uttar Pradesh**, and also served as the **Minister of Defence, Government of India**.
- He was elected as the **Member of Parliament (MP) for 7 times** and the **Member of the Legislative Assembly (MLA) for 10 times**

# Open Network for Digital Commerce

Relevance: Prelims & Mains Paper II; Governance



## Meaning

- In May this year, the **Department for Promotion of Industry and Internal Trade (DPIIT)** went live with a test run of ONDC in few cities.
- The ONDC is a **government-backed project** aimed at **enabling small merchants and mom-and-pop stores in parts of the country to access processes and technologies** that are typically deployed by large e-commerce platforms such as Amazon and Flipkart.
- Thus, it is being developed as a counter to the **current stranglehold of two big players** in the Indian e-commerce market, Amazon and Walmart-owned Flipkart.
- ONDC is to be based on **open-sourced methodology, using open specifications and open network protocols** independent of any specific platform.

## Working

- So far, the **buyer side interface is being hosted by Paytm**, whereas the **seller side interface is being hosted by other players like GoFrugal, etc.**
- When a buyer searches for an item on the Paytm app, from where ONDC has gone live, the app will connect to the **ONDC platform, which will connect it to seller side** interfaces that will list all the companies from where you can buy the particular item.
- On ONDC, there will be several other **backend partners** such as logistics service providers, enterprise resource planners, e-commerce store hosting service providers, etc.

## Need for ONDC

- India's e-commerce ecosystem is dominated by big players because large investment is required to set up system.
- It also flagged the inability of marketplace sellers to move out of the platform ecosystem, given that the value created by these small players is stored with the larger platforms.
- With this in mind, ONDC aims to transform the marketplace ecosystem from an operator-driven platform-centric model to a facilitator-driven interoperable decentralised network.

# 11th volume of the Report of the Official Language Committee

Relevance: Prelims & Mains Paper II; Governance



## Formation of Language Panel

- The **Committee of Parliament on Official Language** was **set up in 1976** under **Section 4 of The Official Languages Act, 1963**. Section 4 provides that the Committee is **established by resolution of both the houses**.
- **Unlike Committees of Parliament** mentioned under Rules of Business of houses, **this Committee is constituted by the Home Ministry**, and **submits its report to the President**, who “shall [then] cause the report to be laid before each House of Parliament, and sent to all the State Governments”.
- The Committee is **chaired by the Union Home Minister**, and has **30 members** — 20 MPs from Lok Sabha and 10 MPs from Rajya Sabha.
- The job of the Committee is to **review the progress made in the use of Hindi for official purposes**, and to **make recommendations to increase the use of Hindi in official communications**.

## Why in news?

- The **11th volume of the Report** of the Official Language Committee was submitted to President Droupadi Murmu last month.
- The **contents** of the report submitted to President Murmu by Shah and other members of the Committee are **not in the public domain**.
- However, submission of report has triggered angry reactions from the Chief Ministers of Tamil Nadu and Kerala, who have described the Report as an attempt by the Union government to impose Hindi on non-Hindi-speaking states.

# Hindi version of first-year MBBS books

## Relevance: Prelims

- Union Home Minister Amit Shah will launch the Hindi versions of **first-year MBBS textbooks in Bhopal** on October 16.
- With this, Madhya Pradesh will **inch closer to becoming the first State to provide medical education in Hindi.**

## Relevance: Prelims & Mains Paper II; Governance

### Why in news?

- Chief Ministers of Haryana and Punjab met to discuss the Sutlej Yamuna Link (SYL) canal, the decades-old dispute between the two neighbouring states.
- The Supreme Court in its directive last month had asked Punjab Chief Minister Bhagwant Mann to meet with his Haryana counterpart, Manohar Lal Khattar, for an amicable solution to the SYL issue.

### The SYL Issue

- The issue **dates back to 1966, from the time of reorganisation of Punjab.**
- **When Haryana was formed, a need arose to share river waters with the newly formed state.** But Punjab was opposed to sharing the waters of **Ravi and Beas** with Haryana, citing the riparian principle.
- The riparian principle says that the state through which a river passes has the right to its waters.
- A decade after reorganisation, the Centre issued a notification allocating 3.5 million acre feet (MAF) to Haryana out of Punjab's 7.2 MAF. Thereafter, a reassessment was also undertaken in 1981 of respective shares of Haryana, Punjab and Rajasthan.

## The SYL canal project

- On April 8, 1982, the then Prime Minister Indira Gandhi launched the construction of the Sutlej-Yamuna Link canal.
- The canal to link the two rivers was to stretch across 214 km — 122 km in Punjab and 92 km in Haryana. However, the Akali Dal launched an agitation against the canal.
- In July 1985, then Prime Minister Rajiv Gandhi and the then Akali Dal chief Sant Harchand Singh Longowal signed an accord agreeing for a new tribunal to assess the water.

## Eradi Tribunal

- The Eradi Tribunal headed by Supreme Court Judge V Balakrishna Eradi was set up to reassess availability and sharing of water.
- The Tribunal, in 1987, recommended an increase in the shares of Punjab and Haryana to 5 MAF and 3.83 MAF, respectively.

## Violence in Punjab

- On August 20, 1985, less than a month after the accord, Longowal was killed by militants for signing it.
- In 1990, chief engineer M L Sekhri and Superintending Engineer Avtar Singh Aulakh were killed by militants.
- In two different incidents, labourers were shot dead.
- The construction then came to a halt, with Punjab leaders cautioning the Centre against it.



## Water Crisis in Punjab

- As per a government study, **many areas in Punjab may go dry after 2029.**
- As per the report, water in about **79 per cent area of the state is over-exploited.**
- **Out of 138 blocks, 109 blocks are “over-exploited”, two blocks are “critical” while five blocks are “semi-critical” and only 22 blocks are in “safe” category.**
- In such a situation, with alarms ringing over the need to save water, the government says sharing it with any other state is impossible.

## Haryana’s reasons

- Haryana has been staking claim on Ravi-Beas waters through the SYL canal on the plea that providing **water for irrigation is a tough task for the state.**
- **In southern parts, where the underground water has depleted up to 1700 feet, there is a problem of drinking water.**

# Split verdict on Karnataka hijab ban

Relevance: Prelims & Mains Paper II; Governance

## Meaning

- The **Supreme Court delivered a split verdict in the Karnataka hijab ban case** with one of the two judges on the Bench upholding the March 15 order of the Karnataka High Court validating the government's ban, and the other set aside the High Court ruling.
- A **split verdict** is passed when the **Bench cannot decide one way or the other** in a case, either by a unanimous decision or by a majority verdict.
- Split verdicts can only **happen when the Bench has an even number of judges**. This is why judges usually sit in Benches of odd numbers (three, five, seven, etc.) for important cases, even though two-judge Benches — known as **Division Benches** — are not uncommon.

## What will happen now?

- In case of a split verdict, the **case is heard by a larger Bench**. The larger Bench to which a split verdict goes can be a three-judge Bench.
- In the case of the hijab verdict, the **CJI, who is the 'master of the roster'**, will constitute a new, larger Bench to hear the matter.

## Upholding the HC judgement

- The Supreme Court delivered a split verdict on **whether Muslim students should shed their hijabs at their school gates.**
- **Justice Hemant Gupta upheld Karnataka's prohibitive government order** of February 5, saying “apparent symbols of religious belief cannot be worn to secular schools maintained from State funds”.
- Justice Gupta said **‘secularity’ meant uniformity**, manifested by parity among students in terms of uniform.

## Rejecting the HC judgement

- **In his divergent opinion, Justice Sudhanshu Dhulia said secularity meant tolerance to “diversity”.**
- Wearing or not wearing a hijab to school was “ultimately a matter of choice”.
- For girls from conservative families, “her hijab is her ticket to education”.
- “Asking the girls to take off their hijab before they enter the school gates, is first, an invasion of their privacy, then it is an attack on their dignity, and then ultimately it is a denial to them of secular education...”.

# The issues in the Collegium's functioning

Relevance: Prelims & Mains Paper II; Governance

## What is Collegium?

- The **Collegium** consisting of the CJI and four senior-most judges makes **recommendations for appointment of judges in Supreme Court and High court and transfer of judges in High court.**

## Functioning of Collegium

- Its **resolutions and recommendations are hosted on the Supreme Court's website**, giving relevant information about its decisions.
- However, the nature of the deliberations and whether there are any internal differences of opinion on the suitability of a particular candidate are unknown. Thus, The **Collegium's functioning** has been criticised for being **opaque**.
- It functions mainly through the system of adopting **resolutions** and **sending them to the Union Law Ministry for further action.**
- If a **proposal** for appointment of a judge is **returned** for reconsideration, the Collegium may **either drop it or reiterate it**. When the **Collegium reiterates** its decision after reconsideration, **it is binding on the government.**

# The issues in the Collegium's functioning

Relevance: Prelims & Mains Paper II; Governance



## Recent controversy

- A **meeting** of the Supreme Court Collegium, which was **called for September 30**, but **did not take place**. The meeting had to be postponed because on that day, a member of the Collegium, Justice D.Y. Chandrachud, who will be the next Chief Justice of India, was preoccupied with his list of cases well beyond court hours.
- Subsequently, a **difference of opinion** has been acknowledged over the **manner in which the deliberations were to go on**. While Chief Justice Lalit wanted to **circulate the files** pertaining to some recommendations for appointment to the Supreme Court, two judges in the Collegium, Justice Chandrachud and Justice Abdul Nazeer, did not favour any decision through circulation. They preferred **deliberations in person**.
- What prevented further deliberations was the fact that the Union Law Minister, by a letter dated October 7, requested Chief Justice U.U. Lalit to nominate his successor, as the latter's tenure ends on November 8, 2022.
- There is no law or rule that says the **Collegium** should become **dysfunctional** during the **last month of a Chief Justice's tenure**, but it is observed as a matter of convention.
- Thus, **CJI nominated the successor on his own without consultation** with collegium.

## Questions raised on Collegium System

- One is whether there ought to be a prescribed **mode of decision-making**, that is, through **personal deliberations or by circulation or by adopting both** means as per convenience.
- The **need for the Collegium not to hold any deliberations in the last month** of a Chief Justice's tenure is something to be debated. Given that the CJI is appointed by seniority, many of them have only a short tenure running into a few months.

# Justice Chandrachud – Next CJI

Relevance: Prelims & Mains Paper II; Polity



## Appointment

- President Droupadi Murmu appointed Justice D.Y. Chandrachud as the 50th Chief Justice of India (CJI), Union Law Minister Kiren Rijiju said.
- Justice Chandrachud will take oath on November 9, a day after incumbent CJI Justice Uday Umesh Lalit demits office on attaining the age of 65.
- While Justice Lalit has a brief tenure of 74 days, Justice Chandrachud will serve as the CJI for two years. He will demit office on November 10, 2024.

## Past Experience

- Justice Chandrachud, presently the seniormost Supreme Court judge after Justice Lalit, was elevated to the Supreme Court on May 13, 2016.
- Before his appointment to the top court, Justice Chandrachud served as the Chief Justice of Allahabad High Court from October 31, 2013.
- He also served as a judge of the Bombay High Court from March 2000 to October 2013.

## Judgements

- His notable Supreme Court judgments include
- recognising the right to privacy as a fundamental right,
- decriminalisation of Section 377 of the Indian Penal Code and
- allowing women to enter Kerala's Sabarimala temple, among others.

# Treat of juvenile as an adult

**Relevance: Prelims & Mains Paper II; Governance**

## Why in news?

- The **Juvenile Justice Board (JJB)** recently ordered that a man, who was 16 when he allegedly killed a seven-year-old schoolmate in Gurugram in 2017, will be tried as an adult.
- The JJB had sought a **psychologist's opinion** of the accused, to determine whether he had the mental capacity to commit the crime and understand its consequences on the date of the killing.

## Provision of law for trying as an adult

- According to **Section 15 of The Juvenile Justice (Care and Protection of Children) Act (JJ Act)**, where a child of 16 years of age or above has committed a **heinous offence** — a crime for which the minimum punishment is seven years imprisonment — the **JJB** is required to “conduct a **preliminary assessment** with regard to his mental and physical capacity to commit such offence, ability to understand the consequences of the offence and the circumstances in which he allegedly committed the offence” before deciding if the child should be tried as an adult.
- The assessment is required to be done **within three months from the date of first production of the child before the JJB**.
- The apex court also said that when the **JJB does not comprise a practising professional with a degree in child psychology or child psychiatry**, it would have to mandatorily seek the assistance of experts.



## Prior position

- Prior to the 2015 amendment in the original JJ Act, all children below the age of 18 years were treated as juveniles. The JJB is composed of a judicial officer and two social workers.

## Implication

- As per Section 19 of the amended Act, the juvenile justice court can pass a decision on whether there is a need for trial of the child as an adult, or otherwise.
- A children's court has to ensure that the child in conflict with the law is sent to a "place of safety" until he reaches the age of 21 years, and is only then transferred to jail.
- The court can also order the conditional release of the child after he attains the age of 21 years.
- Two important protections — protection from disqualification, and erasure of conviction record after a reasonable period — do not extend to a child who has been tried as an adult.
- If the child is tried as an adult, the sentence can go up to life imprisonment, but if the child is tried by the board as a juvenile, the maximum sentence can only be three years in a special home.

# Credit system in schools

**Relevance: Prelims & Mains Paper II; Governance**

## Why in news?

- The **draft National Credit Framework (NCrF)** was put in public domain by **Education Minister Dharmendra Pradhan** recently.
- It has been drafted by a 11-member committee headed by **National Council of Vocational Education and Training (NCVET)** chairperson **Nirmaljeet Singh Kalsi**.

## Meaning

- Credits are essentially a “**recognition that a learner has completed a prior course of learning**, corresponding to a qualification at a given level”. In other words, it is a way of **quantifying learning outcomes**.
- School students in India can soon earn ‘credits’ from **classroom learning as well as extracurricular activities** and **deposit them in a ‘bank’** — much like the system already being followed in some colleges and universities.

## Benefits

- It offers flexibility in choosing courses, the option to change courses, institutions or even boards midway, or to reenter the education system after dropping out without losing years.
- The students can digitally deposit their credits in the Academic Bank of Credits or ABC, which in many ways works like a commercial bank, and redeem them whenever required.

## Integration into single framework

- The proposed NCrf seeks to integrate all the frameworks under one umbrella.
- Moreover, it also brings the entire school education system under the ambit of credits for the first time.
- So far, only the National Institute of Open Schooling followed a credit system.
- The NCrf also covers skill and vocational education.

# 'General consent' for CBI, restored by Maharashtra government

Relevance: Prelims & Mains Paper II; Governance

## Why in news?

- The government of **Chief Minister Eknath Shinde** recently restored **general consent** to the Central Bureau of Investigation (CBI) to investigate cases in Maharashtra.
- Restoration of general consent **reversed the decision of the state's previous Uddhav Thackeray-led Maha Vikas Aghadi (MVA) government.**
- CBI will **no longer require the permission of the state government to open investigations in the state.**

## Why is the consent of states needed?

- CBI is governed by The **Delhi Special Police Establishment (DSPE) Act, 1946**, and it must **mandatorily obtain the consent** of the state government concerned before beginning to investigate a crime in a state.
- **Section 6** of The DSPE Act (“Consent of State Government to exercise of powers and jurisdiction”) says: “Nothing contained in section 5 (titled “Extension of powers and jurisdiction of special police establishment to other areas”) shall be deemed to enable any member of the Delhi Special Police Establishment to exercise powers and jurisdiction in any area in a State, not being a Union territory or railway area, without the **consent** of the Government of that State.”
- The CBI's **position is in this respect different from that of the National Investigation Agency (NIA)**, which is governed by The NIA Act, 2008, and has jurisdiction all over the country.

## General consent for CBI

- The consent of the state government to CBI can be either **case-specific** or **“general”**.
- General consent is normally given by states to help the CBI in the **seamless investigation of cases of corruption against central government employees** in their states.
- This is essentially **consent by default**, which means CBI may begin investigations taking consent as having been already given.
- In the **absence** of general consent, **CBI would have to apply to the state government for its consent in every individual case**, and before taking even small actions.

## Status of consent

- **Traditionally, almost all states have given CBI general consent. However, since 2015, several states have begun to act differently.**
- In March this year, **Meghalaya became the ninth state** to have withdrawn consent to the CBI — after Maharashtra, Punjab, Rajasthan, West Bengal, Jharkhand, Chhattisgarh, Kerala, and Mizoram.
- At the time of withdrawing consent, all **states alleged that the central government was using the CBI to unfairly target the opposition.**
- Out of these states, **Maharashtra has now reversed** its decision and restored general consent.
- **All these states except Mizoram and Meghalaya are ruled by the anti-BJP opposition.** Maharashtra has restored consent after the BJP returned to power in the state in alliance with the Shinde faction of the Shiv Sena.

# Judges with longest and shortest tenures

Relevance: Prelims & Mains Paper II; Governance

## 50th CJI tenure

- Justice Chandrachud will take oath on November 9, 2022, a day after incumbent CJI Justice U.U. Lalit retires from office.
- Justice Chandrachud will serve as the CJI for two years and two days until his retirement on November 10, 2024. The criteria for retirement of SC judge is age of 65 years.
- His is expected to be the 14th longest tenure among the tenures of the 50 CJIs.
- His term will be the longest among all the CJIs of the past decade.
- The 11 CJIs who were appointed after Justice S.H. Kapadia, who took charge on May 12, 2010 and who served two years, four months and 19 days in the top post, had shorter stints than what Justice Chandrachud is set to serve.

## Longest tenures

- Justice D.Y. Chandrachud's father, Justice Y.V. Chandrachud, holds the record for serving the longest term as the CJI. Justice Y.V. Chandrachud was appointed on February 22, 1978. He served in the top post for seven years, four months and 19 days.
- Justice Bhuvneshwar Prasad Sinha, India's sixth CJI, comes a distant second with four years, four months and one day at the helm.
- He is followed by Justice A.N. Ray who served for three years, nine months and four days.

## Shortest tenures

- Justice K.N. Singh, who was appointed as the CJI on November 25, 1991, had the shortest stint: only **17 days until his retirement.**
- Justice S. Rajendra Babu was the other CJI whose tenure lasted **for less than a month.**

Name	Term	In days
<b>Top 5</b>		
Justice Y.V. Chandrachud	7 Years 4 Months 19 Days	2,696
Justice Bhuvneshwar Prasad Sinha	4 Years 4 Months 1 Day	1,583
Justice A.N. Ray	3 Years 9 Months 4 Days	1,373
Justice Sudhi Ranjan Das	3 Years 7 Months 30 Days	1,337
Justice K.G. Balakrishnan	3 Years 3 Months 29 Days	1,214
<b>14) Justice D.Y. Chandrachud</b>	<b>2 Years 0 Months 2 Days</b>	<b>732</b>



# Dharavi redevelopment project

Relevance: Prelims & Mains Paper II; Governance

## Why in news?

- On October 18, Union Railway Minister Ashwini Vaishnaw and Maharashtra's deputy Chief Minister Devendra Fadnavis signed a 'definitive agreement' for handing over **47.5 acres of Railway land in Dadar for the Dharavi Redevelopment Project.**
- The agreement was **inked between Railways' Rail Land Development Authority and the Dharavi Redevelopment Project Authority.**

## About Dharavi

- Dharavi is **one of the largest slum clusters of the world, spread over 600 acres.**
- The **cost of the project** is estimated to have **gone up more than six times from ₹4,000 crore in 2004 to be around ₹28,000 crore.**
- The **State government is looking at a joint venture** wherein they will hold a **20% stake** while the selected lead bidder will hold a majority **80% stake.** The **bidding process is going on.**
- This is the **fourth time in the last 18 years** that the Maharashtra government is **attempting to re-build Asia's largest slum cluster** which is home to **close to 58,000 families** and around **12,000 commercial establishments.**



# FCRA license of 2 NGOs associated with Nehru-Gandhi family



Relevance: Prelims & Mains Paper II; Governance

## Why in news?

- The Ministry of Home Affairs has cancelled the Foreign Contribution (Regulation) Act (FCRA) licence of Rajiv Gandhi Foundation (RGF) and Rajiv Gandhi Charitable Trust (RGCT), organisations for alleged violations of the provisions of the Act.
- These NGOs are associated with the Nehru-Gandhi family

## About FCRA

- FCRA seeks to “regulate the acceptance and utilisation of foreign contribution or foreign hospitality by certain individuals or associations or companies and to prohibit [such] acceptance and utilisation...for any activities detrimental to the national interest...”
- The law was enacted during the Emergency in 1976 amid apprehension that foreign powers were interfering in India’s affairs by pumping in funds through independent organisations.
- An amended FCRA was enacted under the UPA government in 2010.
- The law was amended again by the current government in 2020, giving the government tighter control and scrutiny over the receipt and utilisation of foreign funds by NGOs.
- A legal challenge to the 2020 amendments was rejected by the Supreme Court in April this year.

## Provisions of FCRA

## Registration under FCRA

- The **important provisions** of the act are as follows:

1. Every **person or NGO** wishing to **receive foreign donations to be registered** under the Act.
2. Open a **bank account for the receipt of the foreign funds in State Bank of India, Delhi**
3. **Utilise those funds only for the purpose for which they have been received, and as stipulated in the Act. They must not transfer the funds to another NGO.**
4. They are also required to **file annual returns.**
5. The Act prohibits **receipt of foreign funds by candidates for elections, journalists or newspaper and media broadcast companies, judges and government servants, members of legislature and political parties or their office-bearers, and organisations of a political nature.**

- NGOs that want to receive foreign funds must **apply online in a prescribed format with the required documentation.**
- FCRA registrations are granted to **individuals or associations** that have **definite cultural, economic, educational, religious, and social programmes.**
- Following the application, the **MHA makes inquiries** through the **Intelligence Bureau** into the antecedents of the applicant.
- The MHA is required to approve or reject the application within **90 days.**
- Once granted, FCRA registration is valid for **five years.**
- NGOs are expected to apply for **renewal** within **six months of the date of expiry** of registration. In case of failure to apply for renewal, the registration is deemed to have expired.

## Cancellation of approval

- The **government reserves the right to cancel** the FCRA registration of any NGO if it finds it to be in violation of the Act.
- Registration can be cancelled for a **range of reasons including**, if “in the **opinion of the Central Government, it is necessary in the public interest to cancel the certificate**”.
- Once the registration of an NGO is cancelled, it is **not eligible for re-registration for three years**.
- All orders of the government can be **challenged in the High Court**.

# 'One Nation, One Uniform' for police

Relevance: Prelims & GS Mains II; Governance

## Why in news?

- Addressing the first Chintan Shivir (brainstorming session) of state home ministers and top police officers recently, **Prime Minister Narendra Modi pitched the idea of "One Nation, One Uniform" for Indian police forces.**
- "The 'One Nation, One Uniform' for police is just an idea. I am not trying to impose it on you. Just give it a thought. It may happen, it may happen in 5, 50, or 100 years. All the states should just think it over," the PM said, adding that **he believed the identity of police across the country should be the same.**

## Uniform set of policies

- Prime Minister Modi's suggestion "One Nation, One Uniform" is in line with his **broader attempt to introduce a uniform set of policies across the country.**
- In **August**, the Ministry of Chemicals and Fertilisers announced that it had implemented the "**One Nation One Fertiliser**" scheme.
- The Government of India in **August 2019** had introduced the "**One Nation One Ration Card**" scheme.
- Modi has also repeatedly suggested the implementation of "**One Nation, One Election**", and adopting a single voter list for all polls.

## State Subject

- The Indian Constitution puts police forces under the jurisdiction of state governments, and each of the 28 states have their own police force.
- Both 'public order' and the 'police' are placed in List II (State List) of the Seventh Schedule of the Constitution, which deals with the division of powers between the Union and States.
- While police personnel in India are often associated with the colour khaki, their uniforms do differ in varying degrees in different regions.
- Since state governments and even an individual force can decide the uniform their personnel wear, there are at times inconsistencies in their official attire.

# Future of Twitter under Elon Musk

Relevance: Prelims & GS Mains II; Governance

## Why in news?

- Elon Musk's finally completed purchase of Twitter for \$44 billion.
- Musk terminated Twitter Chief Executive Officer Parag Agrawal and other important officials.
- In the months leading to his takeover, Musk had publicly accused Agrawal and other Twitter executives of misleading him and Twitter investors over the number of fake accounts or bots on the social media platform.

## Procedure of acquisition

- Musk began accumulating shares in Twitter this year.
- In April this year, he struck a deal to buy the company for \$44 billion.
- Soon after, he claimed that the company had failed to accurately report the number of spam accounts on its platform.
- In July, citing bots, Musk said he was no longer interested in buying Twitter, and at this point, the platform sued him for breaching the original agreement.
- Twitter accused Musk of trying to back out of the deal because the economic downturn had caused a decline in his personal wealth.
- In October, Musk said he would continue the acquisition at the original price if Twitter paused the lawsuit. The case was put on hold until October 28, and Musk was given three weeks to close the deal.

## Why Musk bought?

- Musk has said that he was driven by the **need to keep Twitter free as a “public space,”** in order to **safeguard democracy and civilization.**
- He has been **critical of Twitter’s move to ban accounts,** such as that of former US President Donald Trump, and some reports speculated Musk might restore Trump’s account soon.

## Plan of Musk

- It’s difficult to say, but Musk has highlighted some areas of interest at different points in time. Apart from the **protection of free speech,** Musk has hinted at a **new approach towards advertising.**
- **Unlike other social media platforms such as Instagram and YouTube, Twitter has not been able to achieve a similar source of advertising revenue.** Its **audience size** is also estimated to be **much smaller.**
- Musk has also previously talked about creating a **super app** called X, similar to WeChat in China, or the recently-launched TataNeu app in India, where multiple services such as shopping, ordering food, ride-hailing, etc. can be requested through one all-encompassing app.

# Proposed Uniform Civil Code in some States

Relevance: Prelims & Mains Paper II; Governance

## Why in news?

- Gujarat Home Minister recently announced the formation of a committee to implement a uniform civil code (UCC) in the state.
- In May this year, Uttarakhand announced a committee led by retired Supreme Court judge Justice Ranjana Desai to carry out a similar exercise.
- Assam and Himachal Pradesh, also ruled by the BJP, too have supported the idea of a UCC.
- Over the decades, the BJP in particular has pushed for a UCC, and the Supreme Court has on a few occasions expressed itself in favour of it.

## Constitutional Position

- A UCC would provide for one law for the entire country, applicable to all religious communities in their personal matters such as marriage, divorce, inheritance, adoption, etc.
- Article 44 of the Indian constitution says, “The state shall endeavour to secure a Uniform Civil Code for the citizens throughout the territory of India.”
- Article 44 is one of the Directive Principles of State Policy, described in Part IV of the Constitution.
- According to Article 37, “The provisions contained in this Part shall not be enforceable by any court, but the principles therein laid down are nevertheless fundamental in the governance of the country and it shall be the duty of the State to apply these principles in making laws.”



## Uniformity in personal laws

- Personal laws are **diverse** in nature. Thus, all Hindus of the country are not governed by one law, nor are all Muslims or all Christians.
- **Not only British legal traditions, even those of the Portuguese and the French remain operative in some parts.**
- In the Northeast, there are more than 200 tribes with their own varied **customary laws**. The Constitution itself protects local customs in Nagaland. Similar protections are enjoyed by Meghalaya and Mizoram.
- Even reformed Hindu law, in spite of codification, protects customary practices.

INTERNATIONAL  
ORGANISATIONS  
&  
BILATERAL  
RELATIONS

# What happened to the Nord Stream pipelines?

Relevance: Prelims & Mains Paper II; International Issues

## About the pipelines

- **Nord Stream 1** - The \$7.1 (€7.4) billion Nord Stream 1 subsea pipeline has been **operational since 2011**, and is the largest single supply route for Russian gas to Europe.
- The Russian state-owned gas company **Gazprom** has a majority ownership in the pipeline.
- **Nord Stream 2** - The construction of the \$11 billion-worth Nord Stream 2 was **completed in 2021** but **never began commercial operations**.

## Present status

- **40% of Europe's pipeline gas** came from Russia before the war ; the number now stands at just 9%.
- **Nord Stream 1** running at **just 20%** of its capacity since the Russia-Ukraine conflict began.
- **Nord Stream 2 supply has not been started.**
- **Four leaks** were reported at different points in the Nord Stream pipelines. Two of the leaks were in Swedish waters while the other two were reported from Danish waters.
- Ukraine called the leaks a “terrorist attack” and an “act of aggression towards the EU” planned by Russia. Incidentally, Russia said that the leaks were an act of “terrorism” possibly by a state-actor.



# Far-right government in Italy

Relevance: Prelims & Mains Paper II; International Issues

## Brothers of Italy

- In Italy, the right alliance headed by **Giorgia Meloni** from **Brothers of Italy** has emerged victorious in the recent elections.
- It won with a majority of seats in the **Chamber of Deputies (lower house)** and in the **Deputies of the Senate (upper house)** of Italian Parliament.
- Brothers of Italy party has managed to keep true to its **fascist roots** even when it entered mainstream politics.

## Concern of Europe

- Europe as a whole is alarmed by the majority won by the Brothers of Italy party.
- This is mainly due to two factors, one being the **party's history of being evolved from Mussolini** and the other is because of the fact that **Italy is one of the most volatile countries** in the region in terms of political stability.





# OPEC+ and its recent decision

## Relevance: Prelims & Mains Paper II; International Organisations



### OPEC

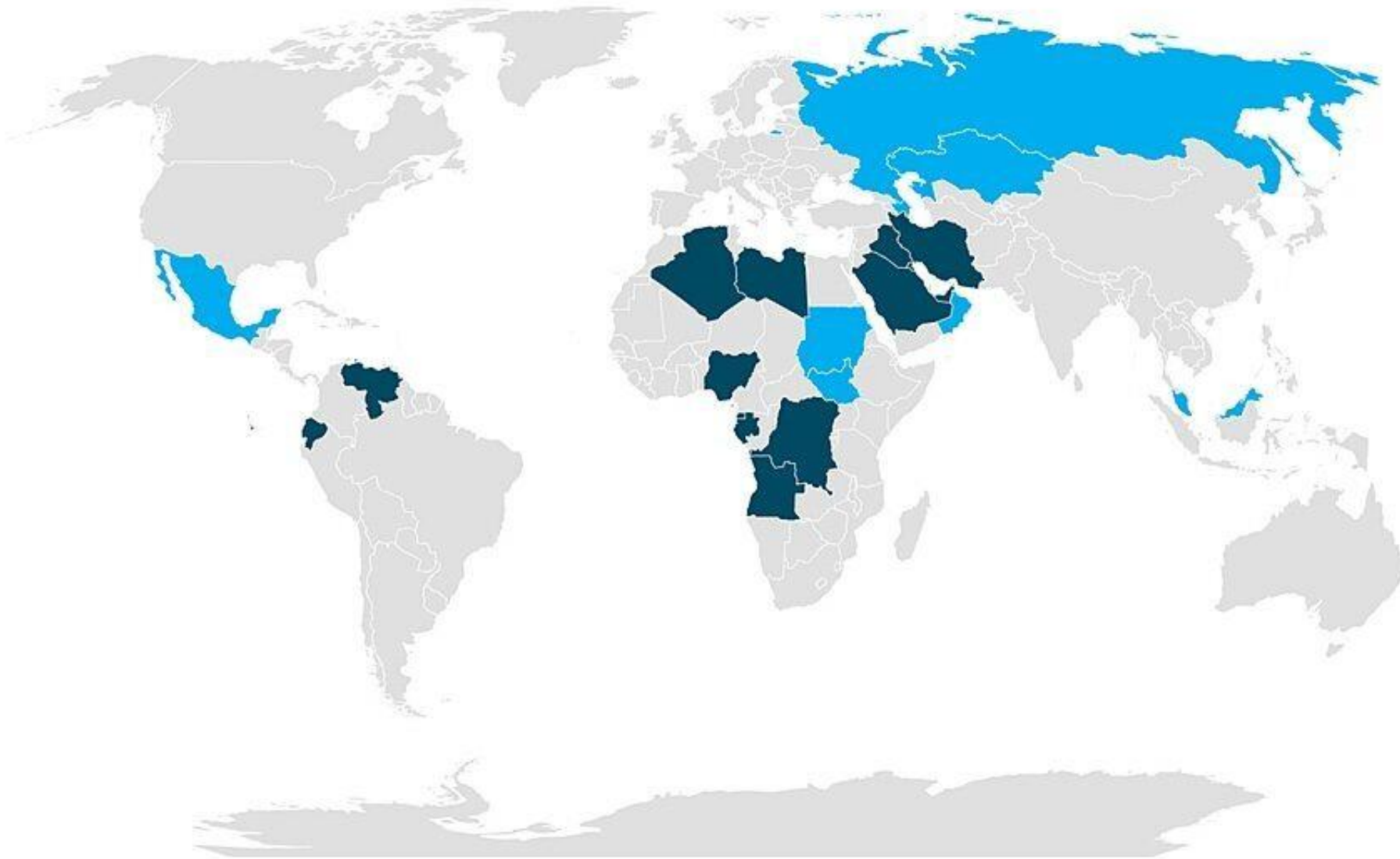
- The Organization of the Petroleum Exporting Countries (OPEC) is an intergovernmental organization of **13 countries**.
- Founded on 14 September **1960 in Baghdad** by the first five members (Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela), it has, since 1965, been headquartered in **Vienna, Austria**, although Austria is not an OPEC member state.
- The 13 member countries accounted for an estimated **44 percent of global oil production and 81.5 percent of the world's proven oil reserves**, giving OPEC a major influence on global oil prices that were previously determined by the so-called "**Seven Sisters**" grouping of multinational oil companies.

### About OPEC +

- The larger group called **OPEC+** was formed in **late 2016** to have more control on the global crude oil market.
- The OPEC+ has **13 members of OPEC and 11 additional members**.
- OPEC+ **determines the global supplies of output of crude oil** in order to maintain the price of crude oil in the international market.
- Recently, OPEC+ has **decided to cut oil production by 2 million barrels per day (bpd) recently**. Brent crude, the international benchmark, was up 28 cents or 0.3%, at \$92.08 a barrel after the cut was announced.

OPEC and OPEC+ Member Nations, 2019

-  OPEC Member
-  OPEC+ Member



# Bridge linking Russia to Crimean Peninsula damaged

Relevance: Prelims & Mains Paper II; International Issues

## Why in news?

- The **road-and-rail bridge linking Russia and the Crimean peninsula was damaged** in a powerful blast recently, hitting a crucial supply route for Russian forces in Ukraine.
- What has been destroyed? The blast brought down **sections of road taking traffic in one direction**. The railway traffic also resumed. The span through which ships pass the strait was not damaged.





## Crimea and Russia link

- The 19-km (12-mile) Crimea Bridge over the Kerch Strait is the only direct link between the transport network of Russia and the Crimean peninsula. Crimean peninsula was annexed by Russia from Ukraine in 2014.
- The bridge was a flagship project for Russian President Vladimir Putin, who opened it himself for road traffic with great fanfare by driving a truck across in 2018. The structure was built, at a reported cost of \$3.6 billion.
- It consists of a separate roadway and railway, both supported by concrete stilts, which give way to a wider span held by steel arches at the point where ships pass between the Black Sea and the smaller Azov Sea.

## Why it matters?

- The bridge is crucial for the supply of fuel, food and other products to Crimea. The port of Sevastopol, located in Crimea, is the home base of Russia's Black Sea Fleet.
- It also became a major supply route for Russian forces after Moscow invaded Ukraine on Feb. 24.

# Foreign Direct Product Rule, or FDPR

Relevance: Prelims & Mains Paper II; International Issues

## About FDPR

- The provision called the **foreign direct product rule**, or FDPR, was **first introduced in 1959 to control trading of US technologies**.
- It essentially says that **if a product was made using American technology**, the **US government has the power to stop it from being sold – including products made in a foreign country**.

## Application of rule

- **Recently, US officials applied the rule to China's advanced computing and supercomputer industry to stop it from obtaining advanced computing chips.**
- The rule took center stage in August 2020, when it was used against China telecom company **Huawei Technologies Co Ltd**. American officials had tried to cut off Huawei's supply of semiconductors but found that companies were still shipping to Huawei chips made in factories outside the United States.
- Eventually, US regulators found a choke point: **Almost all chip factories contain critical tools from US suppliers**. So they expanded the FDPR to control trade of chips made using US technology or tools.
- The move was a blow to Huawei's smart phone business, and US regulators **used it on Russia and Belarus** after the invasion of Ukraine to cut off chips.

## Steps already taken

- The United States had already placed a number of Chinese supercomputing companies on a restricted entity list, cutting them off from buying US chips.
- But those companies started to design their own chips and seek to have them manufactured.
- The latest move would ban any semiconductor manufacturing firm that uses American tools – which most do.

# Nobel Peace Prize 2022

Relevance: Prelims & Mains Paper II; Int issues

## Awardees

- The **Nobel Peace Prize for 2022** has been awarded to
  1. **Human rights advocate Ales Bialiatski from Belarus,**
  2. the **Russian human rights organisation Memorial,** and
  3. the **Ukrainian human rights organisation Center for Civil Liberties.**
- With the awardees being from Belarus, Ukraine, and Russia, an **implicit message has been sent about the ongoing conflict between Russia and Ukraine.**

## Belarus's Ales Bialiatski

- **Ales Bialiatski** is an **initiator of democracy movement** that emerged in **Belarus in the mid-1980s.**
- Bialiatski is also credited with founding the **organisation Viasna (Spring) in 1996** in response to the controversial constitutional amendments that gave the president dictatorial powers.
- Over time, Viasna evolved into a “broad-based human rights organisation”.
- He has been **detained without trial since 2020.**
- In 2020, he was **one of the three recipients of the Right Livelihood Award by the Swedish Right Livelihood Foundation,** sometimes referred to as the “Alternative Nobel”.

## Russian human rights organisation, Memorial

- The committee said the organisation was established in 1987, “by human rights activists in the former Soviet Union who wanted to ensure that the victims of the communist regime’s oppression would never be forgotten.”
- Nobel Peace Prize laureate Andrei Sakharov, who won the prize in 1954, and human rights advocate Svetlana Gannushkina were among the organisation’s founders.
- “Memorial is based on the notion that confronting past crimes is essential in preventing new ones.”

## Ukrainian human rights organisation, Center for Civil Liberties

- The Center for Civil Liberties was founded in Kyiv in 2007 “for the purpose of advancing human rights and democracy in Ukraine”.
- After Russia’s invasion of Ukraine in February 2022, the Center for Civil Liberties has engaged in efforts to identify and document Russian “war crimes” against the Ukrainian civilian population, according to the committee.

# Economics Nobel 2022

Relevance: Prelims & Mains Paper II; Int. Orgs.

## Awardees

- The **Sveriges Riksbank Prize in Economic Sciences for 2022** was awarded to three American economists: Ben S Bernanke, Douglas W Diamond and Philip H Dybvi.

## Contribution

- The awardees have undertaken **research related to how banks function in the early 1980s.**
- Their research acted as **foundation for modern banking research.**
- Modern banking research clarifies **why we have banks, how to make them less vulnerable in crises and how bank collapses exacerbate financial crises.**

# Automatic Exchange Of Information (AEOI) agreement



Relevance: Prelims & Mains Paper II; Int agreements

## AEOI

- An Automatic Exchange of Information Agreement (AEOI) provides for the exchange of non-resident financial account information with tax authorities in the account holder's country of residence.
- The aim of the agreement is to reduce the possibility of tax evasion.
- Participating jurisdictions that implement an AEOI send and receive pre-agreed information each year, without having to send a specific request repeatedly.

## Why in news?

- India has received the fourth set of Swiss bank account details of its nationals and organizations as part of an annual information exchange, under which Switzerland has shared particulars of nearly 34 lakh financial accounts with 101 countries.
- This is the fourth tranche of information that India has received from Switzerland since the two countries entered into an Automatic Exchange Of Information (AEOI) agreement in January 2018. The first such exchange with India took place in 2019.

## Role of OECD

- The **guidelines** and parameters for the **AEOI** are set by the Paris-based international body, the Organisation for Economic Co-operation and Development (**OECD**).
- The **annual exercise** of AEOI exchange, such as the current Swiss bonanza of banking details, is strictly meant for “**tax only**” **purposes** and in India, kept in the custody of and for action by the Central Board of Direct Taxes (CBDT).
- Under the OECD umbrella of AEOI, **India presently shares bulk financial and banking information with 78 countries and receives the same from 107 countries**, with Switzerland known to be sharing some of the most voluminous data.



# Kurds

Relevance: Prelims & Mains Paper II; Int. Issues

## Who are Kurds?

- Kurds are an ethnic group in the Middle East, mostly inhabiting a contiguous area comprising south-eastern Turkey, north-western Iran, northern Iraq, north eastern Syria and south-western Armenia.
- The Kurds are culturally, historically and linguistically classified as belonging to the Iranian people.
- Globally, the Kurds are estimated between 30 million and 45 million, with the majority living in the region they regard as Greater Kurdistan. However, there are significant Kurdish diaspora communities outside this region as well.



## Demand for homeland

- Since the early 20th century, Kurds are considering the creation of a Kurdish homeland called 'Kurdistan'.
- In the 1920 Treaty of Sevres which was signed after the defeat of Ottoman empire in the World war I, provision was made for a Kurdish state.
- However, in the 1923 Treaty of Lausanne (which defined the boundaries for the present Turkey state), no provisions were made for Kurdistan.
- As a result, Kurds became minorities in many countries though residing in a contiguous region.

## Demand for homeland

- The Kurds are demanding the formation of a region for Kurdish people called **Kurdistan** comprising the regions of south-eastern Turkey as Northern Kurdistan, North-western Iran as Eastern Kurdistan, northern Iraq as Southern Kurdistan and northern Syria as Western Kurdistan.
- The Kurds are the majority population in the autonomous region of Iraqi Kurdistan, and are a significant minority group in the neighbouring countries of Turkey, Iran and Syria, where Kurdish nationalist movements continue to pursue greater autonomy and cultural rights.

## Genocide and suppression

- Their movement has often been subjected to **violent suppression** in these countries.
- The **genocidal campaign, conducted between 1986 and 1989, carried out by the Iraqi government** against the Kurdish population killed 182,000 Kurdish civilians. The campaign included use of chemical weapons of mass destruction.

## Role in controlling ISIS

- The Kurds played a **major role in eliminating ISIS from Syria**. They helped the US led coalition in the hopes of support for Kurdistan.
- Kurds along with local Arab militias fought under the banner of Syrian Democratic Forces (SDF) alliance with the US led coalition.
- ISIS was steadily driven out from north eastern Syria and SDF established control over a large stretch of Turkey border.
- However, no concessions from Turkey or interventions from the USA were made to support the formation of Kurdistan.

## Present status

- At present, only two countries of these regions recognize Kurds as a separate entity—Iraq's Kurdish autonomous region and Iran Kordestan.
- The roles of Kurds in eliminating ISIS from Syria and Iraq, won international sympathy for the cause of Kurds.
- In 2017, a referendum for independence was passed in favour of a separate state for Kurds in Iraq.
- However, Iraqi state forces launched an offensive against Kurds and took back some of the territories gained by Kurds.
- In 2019, Turkey also launched an offensive in north eastern Syria to subdue Kurdish forces where the US forces did not support the Kurds.

# Historic deal between Israel-Lebanon

Relevance: Prelims & Mains Paper II; Int. relations

## Historic deal between Israel-Lebanon

- Recently, **Israel announced a “historic” deal with Lebanon**, after mediation by the **US**, aimed at **resolving a long-running maritime border dispute over Mediterranean waters**.
- The issue is a little over a decade old, after the two countries declared overlapping boundaries in **2011** in the Mediterranean Sea.
- The **issue gained significance after Israel discovered two gas fields off its coast a decade ago**, which experts had believed could help turn it into an energy exporter. ✓
- Israel and Lebanon **do not have official diplomatic relations** and the two countries remain technically at war.

## Lebanon-Israel: border dispute



Agreement details	Importance of agreement	Does not address
<ul style="list-style-type: none"> <li>- The gas field in question is located on the maritime boundary between the two countries and this agreement would allow both countries to get royalties from the gas.</li> <li>- It also sets a border between the maritime waters of Lebanon and Israel for the first time.</li> </ul>	<ul style="list-style-type: none"> <li>- The agreement will create new sources of energy and income for both countries, particularly important for Lebanon, which is facing a crippling energy and financial crises.</li> <li>- It could also have a potentially wider impact: it would likely provide Europe with a potential new source of gas amid energy shortages caused by the Russian invasion of Ukraine.</li> </ul>	<ul style="list-style-type: none"> <li>- The agreement does not touch on the shared land border between Israel and Lebanon, which is still disputed, but where both countries are committed to a ceasefire.</li> <li>- This border is also called the Blue Line, a boundary that was drawn up by the UN after Israel withdrew from southern Lebanon in 2000.</li> <li>- This land border is currently patrolled by the United Nations forces.</li> <li>- Settling the land border dispute between Lebanon and Israel is much more complicated.</li> </ul>



# Global Hunger Index Report 2022

Relevance: Prelims & Mains Paper II; Int. Orgs.



## Recent ranking

- India ranks **107 out of 121 countries** on the Global Hunger Index in which it fares worse than all countries in South Asia barring war-torn Afghanistan.
- **The country ranks below Sri Lanka (64), Nepal (81), Bangladesh (84) and Pakistan (99); Afghanistan is the only South Asian country that lags behind India in the listing.**
- With a score of 29.1, India falls in the 'serious' category of hunger.

## About the Index

- The Global Hunger Index (GHI) **measures and tracks hunger at global, regional and national level.**
- The index is **calculated annually**, and the **report is issued in October each year.**
- GHI was created in **2006** by the **US-based International Food Policy Research Institute (IFPRI)** and **German NGO Welthungerhilfe**. In **2007**, the **Ireland based NGO Concern Worldwide** also became a co-publisher.
- However, in **2018**, **IFPRI gave up its involvement** and the GHI became a joint project of Welthungerhilfe and Concern Worldwide.

### GHI Scores

The Global Hunger Index measures hunger on a 100-point scale, with 0 being the best score (no hunger) and 100 being the worst, although neither of these extremes is reached in practice. The severity of hunger associated with the range of possible GHI scores is as follows:

Levels	Description	Numerical Value
Low hunger	Value less than 10	$\leq 9.9$
Moderate hunger	Value from 10, but less than 20	10.0–19.9
Serious hunger	Value from 20, but less than 35	20.0–34.9
Alarming hunger	Value from 35, but less than 50	35.0–49.9
Extremely alarming hunger	Value from 50 and above	$\geq 50.0$



## Components of GHI

For each country in the list, the GHI looks at four indicators:

1. **Undernourishment:** Undernourishment reflects inadequate food availability. It is calculated by the share of the population whose calorie intake is insufficient.
2. **Child Wasting:** Child wasting reflects acute undernutrition. It is calculated by the share of children under the age of five who have low weight for their height.
3. **Child Stunting:** Child stunting reflects chronic undernutrition. It is calculated by the share of children under the age of five who have low height for their age.
4. **Child Mortality:** Child mortality reflects both inadequate nutrition and unhealthy environment. It is calculated by the mortality rate of children under the age of five.

Each country's data on the above four indicators is arranged on a 100-point scale. Thereafter, a final score is calculated after giving 33.33% weight each to components 1 and 4 (Undernourishment and Child Mortality) and giving 16.66% weight each to components 2 and 3 (Child Wasting and Child Stunting).

Countries with score of less than or equal to 9.9 are put under "low" hunger category; those with score between 10 and 19.9 are put under "moderate" hunger category; those with score between 20 and 34.9 are put under "serious" hunger category; those with score between 35 and 49.9 are put under "alarming" hunger category and those with score 50 and above are put under "extremely alarming" category.

### **GHI is a comprehensive measure of Hunger**

Hunger is **commonly understood** in terms of food deprivation and is calculated based on the level of **calorie intake**. This is a very narrow definition of hunger.

GHI takes into account a very **broad definition** of hunger. It takes into account four key parameters. These parameters capture multiple dimensions of hunger such as not just inadequacy of calorie intake but also deficiency of micronutrients, providing a far more comprehensive measure of hunger.

# Interpol General Assembly meeting in Delhi

Relevance: Prelims & Mains Paper II; International Organisation



## Interpol

- Interpol stands for **International Criminal Police Organization**.
- It has the objective to ensure **mutual assistance amongst criminal police authorities** existing in the different countries.
- Thus, it is an intergovernmental organization facilitating cooperation amongst police of various nations.
- It is the **second largest political organization** after the United Nations in terms of international representation.
- It has a representation of **195** countries (as of 2021). Its headquarters is located in **Lyon, France**.

## Organisation of Interpol

- The head of Interpol is the **President** who is elected by the General Assembly. He **comes from one of the member-nations** and holds office for **four years**.
- The day-to-day activities are overseen by a **full-time Secretary General elected by the General Assembly**, who holds office for **five years**.
- The **General Assembly lays down the policy for execution** by its **Secretariat** which has **several specialised directorates** for cybercrime, terrorism, drug trafficking, financial crime, environmental crime, human trafficking, etc.

## Link with member nations

- Every member-country is the Interpol's face in that country.
- **All contact** of a country's law enforcement agency with Interpol is **through the highest investigating body of the land.**
- The **CBI** assumes this role in India with **one of its senior officers heading its exclusive Interwing (the National Central Bureaus)** for collation of information and liaison with the world body.

## Interpol Notice

- An **Interpol notice** is a **communication about crimes, criminals, and possible threats to member states.**
- Interpol issues notices **either on its own initiative or on requests from its member states' or authorized international entities such as the United Nations or International Criminal Court.**
- There are **eight types** of notices issued by Interpol. Seven are colour-coded based on their purpose: Red, Blue, Green, Yellow, Black, Orange and Purple.
- The most popular is the **Red Notice** which can be understood as **international arrest warrant.** **Eighth type** of Notice is a **special notice** which is **issued at the request of the United Nations Security Council.**

### Type of notices issued by Interpol

Notice type	Details
Red Notice	To secure arrest of a person with a view to his/her extradition
Blue Notice	To obtain information about a person as part of criminal investigation
Green Notice	To warn about a person's criminal activities
Yellow Notice	To locate a person who is missing
Black Notice	To seek help in identification of dead bodies
Orange Notice	To warn of a possible event, a person, an object or a process which possess grave threat and danger to persons or property
Purple Notice	To provide information on methods, devices used or hiding places used by criminals
Interpol-United Nations Security Council Special Notice	To communicate Interpol's members that an entity or individual is subject to UN sanctions

# China's 'Wolf Warrior' Diplomacy

Relevance: Prelims & Mains Paper II; International Issues

## Why in News?

- The “wolf warrior” style of Chinese diplomacy particularly attracted attention in the recent years.
- A term that gained popularity, especially after Xi became President, “wolf warrior diplomacy” is a tactic for the Chinese government to extend its ideology beyond China and counter the West and defend itself.
- It is an unofficial term for the more aggressive and confrontational style of communication that Chinese diplomats have taken to in the last decade.

## Named after

- A 2015 Chinese action film, titled ‘Wolf Warrior’, and its sequel have served as the inspiration for the term. The films, with their nationalist themes and dialogues, focus on Chinese fighters who frequently face off against Western mercenaries.

## Need in recent years

- 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.
- Some examples can be seen in the form of messaging on social media too, where Chinese officials are quick to counter any allegations by the West and proactively launch attacks.

# Multidimensional Poverty Index (MPI) Report

Relevance: Prelims & Mains Paper II; International Organisations

## Positive Finding

- About **41.5 crore people exited poverty** in India during the 15-year period between **2005-06 and 2019-21**.
- The **incidence of poverty fell from 55.1% in 2005-06 to 16.4% in 2019-21** in the country and that deprivations in all 10 MPI indicators saw significant reductions as a result of which the MPI value and incidence of poverty more than halved.

## Negative Finding

- Despite the strides made, the report notes that the ongoing task of ending poverty remains daunting.
- **India has by far the largest number of poor people worldwide at 22.8 crore**, followed by **Nigeria at 9.6 crore**.
- There were also **9.7 crore poor children in India in 2019-2021**.



The Global Multidimensional Poverty Index (MPI) was developed in 2010 by the Oxford Poverty & Human Development Initiative (OPHI) and the United Nations Development Programme. It replaced the previous Human Poverty Index.

The global Multidimensional Poverty Index (MPI) is an international measure of acute poverty covering over 100 developing countries. It complements traditional income-based poverty measures by capturing the severe deprivations that each person faces at the same time with respect to education, health and living standards.

The index uses the same three dimensions as the Human Development Index: health, education and standard of living. These are measured using 10 indicators.

Dimension	Indicators
Health	<ul style="list-style-type: none"> <li>■ Child Mortality</li> <li>■ Nutrition</li> </ul>
Education	<ul style="list-style-type: none"> <li>■ Years of schooling</li> <li>■ School attendance</li> </ul>
Living Standards	<ul style="list-style-type: none"> <li>■ Cooking fuel</li> <li>■ Toilet</li> <li>■ Water</li> <li>■ Electricity</li> <li>■ Floor</li> <li>■ Assets</li> </ul>



## Indicators used

The following 10 indicators are used to calculate the MPI:

- **Education** (each indicator is weighted equally at 1/6)
  1. **Years of schooling:** deprived if no household member has completed six years of schooling
  2. **Child school attendance:** deprived if any school-aged child is not attending school up to class 8
- **Health** (each indicator is weighted equally at 1/6)
  3. **Child mortality:** deprived if any child has died in the family in the past 5 years
  4. **Nutrition:** deprived if any adult or child for whom there is nutritional information is stunted
- **Standard of Living** (each indicator is weighted equally at 1/18)
  5. **Electricity:** deprived if the household has no electricity
  6. **Sanitation:** deprived if the household's sanitation facility is not improved (according to MDG guidelines), or it is improved but shared with other households
  7. **Drinking water:** deprived if the household does not have access to safe drinking water (according to MDG guidelines) or safe drinking water is more than a 30-minute walk (round-trip) from home
  8. **Floor:** deprived if the household has a dirt, sand or dung floor
  9. **Cooking fuel:** deprived if the household cooks with dung, wood or charcoal
  10. **Assets ownership:** deprived if the household does not own more than one out of: radio, TV, telephone, bike, motorbike or refrigerator and does not own a car or truck

A person is considered poor if they are deprived in at least a third of the weighted indicators. The intensity of poverty denotes the proportion of indicators in which they are deprived.

## Calculation of the Index

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The MPI is calculated as follows:

$$\text{MPI} = H \times A$$

H: Percentage of people who are MPI poor (incidence of poverty)

A: Average intensity of MPI (% of poor people)

# Pakistan is off FATF's grey list

**Relevance: Prelims & Mains Paper II; International Issues**

## About FATF

- The **Financial Action Task Force** (FATF) is an intergovernmental body established in **1989**.
- The objectives of the FATF are to **set standards and promote effective implementation of legal, regulatory and operational measures for combating money laundering, terrorist financing and other related threats such as financing of weapons of mass destruction**.
- The FATF's **decision-making body**, the **FATF Plenary**, meets **three times** per year.

## Membership

- There are currently **39 members** of the FATF; **37 nations and 2 regional organizations** namely **Gulf Cooperation Council and European Commission**.
- The members are required to **implement the FATF guidelines and declare money laundering as an offence through national legislation**. The members are also required to **strictly enforce the anti-money laundering legislation**. For instance, India passed the 'Prevention of Money Laundering Act' in 2002 to combat money laundering.

## FATF Lists

- The FATF publishes 'grey list' for jurisdictions with **weak measures to combat money laundering and terrorist financing**. If the country in the grey list fails to achieve the required progress by the deadline, it is placed in the Black list.
- It also publishes 'black list' for jurisdictions which are **non-cooperative in the global fight** against money laundering and terrorist financing.
- At present, the FATF **blacklist** includes two countries: **North Korea and Iran**.
- These lists are issued **three times** a year.

## FATF and Pakistan

- For the **third time**, Pakistan was placed in the FATF grey list in 2018. Earlier, it was in the FATF watch list in 2008 and from 2012 to 2015.
- Pakistan was placed in the FATF Grey list in June 2018 and was asked to implement a **27-point action plan** to combat money laundering and counter terrorism financing.
- As Pakistan has been able to fulfill the points in the action plan, it has been removed from the Grey List. Pakistan is **off the 'grey list'** of the Financial Action Task Force (FATF) **after four years**.

## Has Pakistan fulfilled all obligations?

- Technically speaking, in the **assessment of the FATF**, Pakistan **has completed** the tasks that it was given.
- In an official statement, India has noted that “as a **result of FATF scrutiny**, Pakistan has been forced to take **some action against well-known terrorists**, including those involved in attacks against the entire international community in Mumbai on 26/11”.
- However, “It is in **global interest that the world remains clear that Pakistan must continue to take credible, verifiable, irreversible and sustained action against terrorism and terrorist financing emanating from territories under its control.**”

## Benefits to Pakistan

- There is research that suggests grey-listing negatively impacts the relationship of the concerned countries with **international funders** including banks and financial institutions that take note of FATF rankings, as well as existing and potential **overseas investors** in those countries.
- The Pakistani economy is in dire straits, and in desperate need of help and investment.

# Imran Khan's disqualification



Relevance: Prelims & Mains Paper II; International Issues

## Nawaz Sharif's disqualification

- **Panama Papers** lead to Pakistan PM Nawaz Sharif's resignation. **Sharif resigned as Prime Minister in July 2017** when Supreme Court of Pakistan convicted him for **false declaration of assets in 2013 election nomination papers**. His family was mentioned in the Panama Papers
- The Panama Papers are **leak of 11.5 million files belonging to the world's fourth largest offshore law firm, Mossack Fonseca**.

## Imran Khan's disqualification

- Imran himself has been **disqualified for "making "false statements and incorrect declarations" in a matter pertaining to the sale of certain items from the government's toshakhana**.
- Toshakhana is a **government treasury** into which all **gifts and presents from foreign dignitaries or governments to the head of government or other high officials** must be deposited, if they are above a certain value.

## Possibly Appeal to Court

- The legal eagles of Imran's party are in the process of **moving court** to challenge the application of the provision of the Constitution to his case, as well as **whether the Election Commission is the right forum** to take up the reference under that provision.
- Meanwhile, the ruling has set off protests across Pakistan.
- It is not clear yet for how long Imran has been disqualified, but it effectively **ends his membership of Parliament which he won last week.**

## Recent bye-elections

- In **April, Imran and most of his party members declared they had resigned** from Parliament in protest against his ouster as Prime Minister. The **byelections** were held for vacated seats.
- Imran, whose popularity graph has been on the rise since his ouster, **contested from seven of these to prove a point, and swept all seven.**

# Liz Truss forced to resign as UK Prime Minister

Relevance: Prelims & Mains Paper II; International Issues

## What has happened?

- **Less than a month** after becoming PM, Liz Truss government has been forced to resign following a rebellion within her Conservative Party.
- Truss is now the **shortest-serving PM** in British history.
- Truss became PM when UK has been facing long-term **economic stagnation** on the one hand and **double-digit inflation** in the wake of the war in Ukraine, on the other.
- She had to resign for her faulty economic policies which were infamously called **Trussonomics** which were evident by means of **mini-budget** introduced by her government.

## Trussonomics blunders

- The faulty economic decisions taken by Truss can be studied under the following headings:
  1. **Increase in government borrowings**
  2. **Market reaction**
  3. **Crisis in pension funds**
  4. **Crisis in loan rates**
  5. **U-turn upon U-turn**



## High Govt. borrowings

- In order to revive the economic growth, her government introduced mini-budget in which it adopted **widespread tax cuts as well as provided energy price guarantees against rampaging inflation.**
- Her government essentially ramped up spending while also cutting tax revenues.
- The budget meant that the government's **borrowings were set to spiral.**

## Market reaction

- The mini-Budget suggested sharp rise in borrowings which implied that the government may not be able to repay the debts it accumulated.
- In a panic reaction, **investors started selling all possible UK assets.**
- As such, the **pound sterling fell to historic lows** against the US dollar; worsening the imported inflation in the process because it made **imports costlier.**
- Similarly, investors, unwilling to lend money to the UK government, started **selling gilts** (government bonds).
- As the **price of gilts fell**, their yields (or the effective interest rate that the markets charge for lending money) skyrocketed.
- Within no time, the Bank of England had to step in to stop a financial collapse.

## Crisis in pension funds

- A direct result of the mini-Budget and the fall in gilt prices (and a rise in gilt yields) was the **crisis** it set off in the **pension funds** in the UK.
- Several pension funds have invested in gilts. **Fall in value of gilts meant fall in assets of pension funds.**
- This created massive panic and genuine doubts over the viability of the pension funds.

## Rise in interest costs

- A sharp **rise in market interest rates** also meant that those with home loans had to either refinance or risk losing their homes; prospective owners found that a new loan was considerably costlier within no time.

## U-turns

- As it became clear that the markets would continue to punish UK assets unless Truss realised her mistake, the **PM reluctantly started announcing U-turns.**
- One by one, she started reversing implementation of her ideas such as reducing the tax on the super-rich.

# China keeps blocking the names of terrorists suggested by India

Relevance: Prelims & Mains, GS Paper II- Bilateral Relations

## Why in news?

- Recently, China placed a “hold” on a joint India-U.S. proposal, to designate Lashkar-e-Taiba commander Shahid Mehmood under the United Nations Security Council’s (UNSC) 1267 list of terrorists affiliated to Al Qaeda and ISIS.
- The hold marked the fourth time China had attempted to block a listing move by India and the U.S. in the past four months.

## What does “placing a hold” mean?

- The 1267 committee that was set up in 1999 (updated in 2011 and 2015) allows any UN member state to propose adding the name of a terrorist or terror group to a consolidated list, maintained by the Committee, that has affiliations to Al Qaeda and ISIS.
- India has successfully proposed the listing of several terror entities in the past two decades, including Pakistan-based Jaish-e-Mohammed (JeM) and Lashkar-e-Taiba.
- According to the rules, once a listing is proposed, it will be adopted into the list according to a “no-objections” procedure: which means, if any member of the Committee, which comprises all members of the UN Security Council, places a hold on the listing or objects outright to it, the listing cannot be adopted.

## China - holding the listings

- As a **permanent member of the UNSC, China** can do this any number of times as its term doesn't run out, and it carries a veto vote.
- Since 2001, China has **placed holds on a number of listing proposals relating mainly to Pakistan-based groups and their leaders**, given the close bilateral ties between the two countries.
- Most notable was China's objections to the listing of JeM founder **Masood Azhar**. Azhar was released from prison by India in 1999 and handed over to terrorists in return for hostages onboard Indian Airlines flight IC-814, which should have left little doubt about Azhar's own status as a terrorist.
- When asked for a reason for the persistent "holds" on India's requests for various terror listings, **Chinese Ambassador to India Sun Weidong** said **they needed "some time to study these specific cases, but that doesn't mean China has changed its position on counter-terrorism cooperation efforts."**

## Options with India

- Since the Mumbai attacks in 2008, India has tried a number of different ways to build international consensus on cross-border terrorism, and the **UNSC terror listings** have been one such route.
- Another option is through Paris-based **Financial Action Task Force**, where Pakistan was placed on a "grey list" due to its inability to curb terror financing and money laundering. Though it has been taken off the list for now, it will continue to be under scrutiny.
- Finally, **India and the U.S. have built their own separate list of "most wanted" terrorists** that document the cases against them, with a view to eventually receiving global cooperation on banning them.

# Third term to Xi and more power through amendment to Const.

Relevance: Prelims & Mains, GS Paper II- International Issues

## Why in news?

- China's ruling Communist Party amended its constitution, further cementing President Xi Jinping's power.
- The party constitution, or charter, is a document of ultimate authority by which all 96 million party members must abide, and amendments remain effective indefinitely.
- Xi also amended the constitution in 2017, when he incorporated an ideology with his name — Xi Jinping Thought on Socialism with Chinese Characteristics in the New Era — into the constitution, putting him on par with leaders Mao Zedong and Deng Xiaoping.
- Xi, 69, has already been confirmed to a third five-year leadership term as party general secretary.

## Revisions in Party Constitution

- “Two Establishes”, which defines Xi as the “core” leader of the party and cements his ideas as the guiding principles of China's future development
- “Two Safeguards”, which assures Xi's “core” status within the party and the party's centralised authority over China
- Developing “fighting spirit”, strengthening fighting ability
- Promoting “Chinese-style modernisation”
- Gradually achieving “common prosperity”
- Developing a broader, fuller and more robust “whole-process people's democracy”
- Requiring political loyalty in the military
- Opposing and deterring separatists seeking Taiwan independence
- Recognising the party as the “supreme political leadership force”
- Obliging all party members to learn the party's history

# HAWK air defence equipment

Relevance: Prelims & Mains Paper II; International Issues

## Why in news?

- The United States is considering retrieving older HAWK air defence equipment from storage to send to Ukraine which is facing a heavy barrage of Russian drone-fired and cruise missiles.
- The report said it was unclear how many HAWK systems and missiles the United States is going to send to Ukraine.

## HAWK after Stinger

- The HAWK interceptor missiles would be an upgrade to the Stinger missile system, which is a smaller, shorter-range air defence system. The US sent the shoulder-fired anti-aircraft Stingers to Ukraine early on in the war.
- HAWK, short for 'Homing All the Way Killer', entered service with the US Army in 1959, during the Vietnam war. It underwent upgrades over the decades that followed, including a major one in 1971 that produced the so-called I-HAWK (or improved HAWK), with a kill probability of 85%.
- The HAWK system was the predecessor to the PATRIOT missile defence system that Raytheon built in the 1990s.
- US forces largely stopped using HAWK from the early years of the new century. PATRIOT remains off the table for Ukraine.
- The US has provided almost \$17 billion worth of security assistance to Ukraine since the launch of Russia's invasion on February 24.

# Dirty bomb

## Relevance: Prelims & Mains Paper II; International Issues

### Why in news?

- Moscow has accused that Kyiv might be planning to use a so-called “dirty bomb”.
- Kyiv and its Western allies say there is **no truth** at all to the accusation, and that the idea that Ukraine would poison its own territory is patently absurd. They say Moscow could be making the allegation to justify an escalation of its own.

### Dirty bomb

- Dirty bomb is a **conventional explosive device laced with toxic nuclear material**.
- Dirty bombs **do not create city-flattening atomic explosion but are designed to spread toxic waste**.
- Security experts have worried about them mostly as a **form of terrorist weapon** to be used on cities to cause havoc among civilians, rather than as a tactical device for use by warring parties in conflict.
- Experts say the **immediate health impact would probably be limited**, since **most people in an affected area would be able to escape** before experiencing lethal doses of radiation. But the **economic damage could be massive** from having to evacuate urban areas or even abandon whole cities.



# Rishi Sunak – New PM

**Relevance: Prelims & Mains Paper II; International Issues**

## Why in news?

- 57th Prime Minister of the UK
- Belong to conservative party in Britain

## Origin

- He was born in Southampton, England, in 1980.
- Sunak will be the first Prime Minister of Britain who is a practising Hindu. (He has been doing gau-puja while on campaign.). He will also be the first person of colour to be PM.
- Sunak has referred to himself as having “Indian roots” — but remember, that’s pre-Independence, undivided India — not the India of today.
- The Prime Minister’s family was Punjabi Khatri, with roots in Gujranwala, north of Lahore, in present-day Pakistan. Sunak’s grandfather, Ramdas Sunak, migrated to Nairobi, Kenya, in 1935. He had 6 children — and Rishi Sunak’s father, Yashveer, was born in Nairobi in 1949. Yashveer Sunak moved to Liverpool, UK as a teenager in 1966.

## Youngest

- He is **youngest in more than 200 years**. Sunak is only **42**.
- The only man who was younger than him when he became PM was **William Pitt the Younger**, who became the last Prime Minister of Great Britain **in 1783 at age 24** and remained in power until 1801, and then became the first Prime Minister of the United Kingdom of Great Britain and Ireland in 1804.

## Fastest rise to power

- Sunak first became MP (of Richmond, Yorks) in May 2015, and he has become PM in October 2022 — that's **a little more than seven years**.
- Along the way, he has been **Chief Secretary to the Treasury** and **Chancellor of the Exchequer under Prime Minister Boris Johnson**.
- **Pitt the Younger made the journey in just two years, though**.

## Richness

- The **combined fortune** of Prime Minister Sunak and his wife Akshata Murty is estimated at **£730 million**, which is double the estimated wealth (£300 million-£350 million) of King Charles III and Camilla, the Queen Consort.
- Akshata Murty's reported **0.91% stake in Infosys** (she is the daughter of N R Narayana Murthy) is thought to be worth **around £700 million**.

# Anti-Semitism

**Relevance: Prelims & Mains Paper II; International**

## Why in news?

- Clothing giant **Adidas** recently announced that it would be cutting all ties with **Kanye West**, now known as Ye, following a series of concerning comments made by the rapper. The breaking point was a series of tweets by Ye that were widely deemed to be anti-Semitic.
- Although there has been much backlash in response to Ye's comments, many point out that he is **not the only public figure** to seemingly hold a prejudice against Jews.

## Meaning

- Anti-Semitism refers to any form of **prejudice against the Jewish people**. However, the term itself is a misnomer as Semitic designates a language group, not a race.
- Though anti-Semitism can linguistically be used to describe a prejudice against speakers of the Semitic languages (including Arabs and Ethiopians,) in practical terms, it is commonly used specifically to pertain to Jews.

# Brazil chooses Lula for President

Relevance: Prelims & Mains Paper II; International Issues

## Why in news?

- Luiz Inácio Lula da Silva, the leftist leader who is known simply as Lula, will return as president of Brazil to serve an unprecedented **third term**.
- He **defeated incumbent far right President Jair Bolsonaro** by a narrow margin of 50.90 per cent to 49.10 per cent.

## About Lula Da Silva

- Lula was Brazil's president for two terms from **2003 to 2006 and then 2007 to 2011**.
- During his period, the country saw a massive **economic boom**; which paid for sweeping **social welfare programmes** that are credited with having raised millions of people out of poverty.
- Soon after leaving office, Lula **had to fight cancer** of the throat, and his **successor** in the post, **Dilma Rousseff**, was **impeached and removed from office in 2016**.
- The following year, Lula was **convicted of charges of corruption and money laundering** in an investigation into the working of the state-run oil giant **Petrobras**.
- In **April 2018**, a year before **Bolsonaro came to power**, **Lula** started to serve a **12-year sentence** in prison.
- However, in **March 2021**, Lula's **conviction was overturned** by Brazil's Supreme Court, paving the way for his return to political life after serving 580 days in prison.

## India's relations with Brazil under Lula

- India has had **excellent relations with Brazil under Lula**.
- He visited India as the **Chief Guest at the Republic Day parade in 2004, and then again in 2007 and 2008**.
- He **hosted Prime Minister Manmohan Singh in 2006 and 2010, and President Pratibha Patil in 2008**.
- **Lula** was president of Brazil when the first **BRIC** (South Africa was still not a member of the grouping then) was held in Russia in 2009.

## Significance of victory

- The presidential election was a contest between Brazil's **two biggest leaders**, occupying **two poles of the political spectrum**.
- **President Bolsonaro** had come to power on a far **right platform**, and had pressed forward with his agenda — which has pushed the world closer to environmental catastrophe by wanton destruction of the **Amazon rainforest**.
- Over the past decade, Brazil's **economy has slowed down** considerably. While **Bolsonaro** had promised greater **deregulation and privatisation**, Lula has focussed on food and housing for the poor, especially those who have been hit the worst by the pandemic.

## Livestock emissions

- Emissions from livestock mainly include **carbon dioxide (from urea)**, **nitrous oxide (from livestock dung and urine)**, and **methane (from belching)** among others.
- They contribute towards the greenhouse effect as due to these gases, heat gets trapped around the surface of the earth and causes global warming.
- While **nitrous oxide is emitted through livestock dung and urine**, **Manure and gastrointestinal releases** account for about **32 per cent** of human-caused methane emissions.

## Focus on Methane

- The process of **cow belching** releases more **methane** into the environment due to enteric **fermentation**, a digestive process where complex sugars are converted into simpler molecules to be absorbed into the bloodstream, producing methane as a by-product. Whenever a farm animal digests food, methane is released into the atmosphere.
- Further, the **cultivation of paddy**, which floods the fields, prevents oxygen from penetrating the soil and creates **suitable conditions for methane-emitting bacteria**. This accounts for **roughly 8 per cent** of human-linked emissions.
- An IPCC research showed **methane is responsible for at least a quarter of today's global warming**.
- An assessment by the **UNEP and Climate and Clean Air Coalition in 2021** found that **cutting human or farming-related methane emissions by "45 per cent this decade"** is key in the global battle against climate change.

# ECONOMICS



# World's first CNG terminal at Bhavnagar, Gujarat

Relevance: Prelims; Economics



## CNG Terminal

- Prime Minister Narendra Modi laid the **foundation stone for the “world’s first CNG (Compressed Natural Gas) terminal”** at **Bhavnagar** in Gujarat. The terminal will be part of Bhavnagar port in Gujarat.
- This is a three-year-old project that is expected to infuse Rs **4,000 crore** in developing the existing port infrastructure at Bhavnagar.
- The construction is expected to **commence in the first quarter of 2023** after Gujarat Maritime Board approves the Detailed Project Report. It is expected to be made operational by 2026.

# Card Tokenisation

Relevance: Prelims & Mains Paper III

## Why in news?

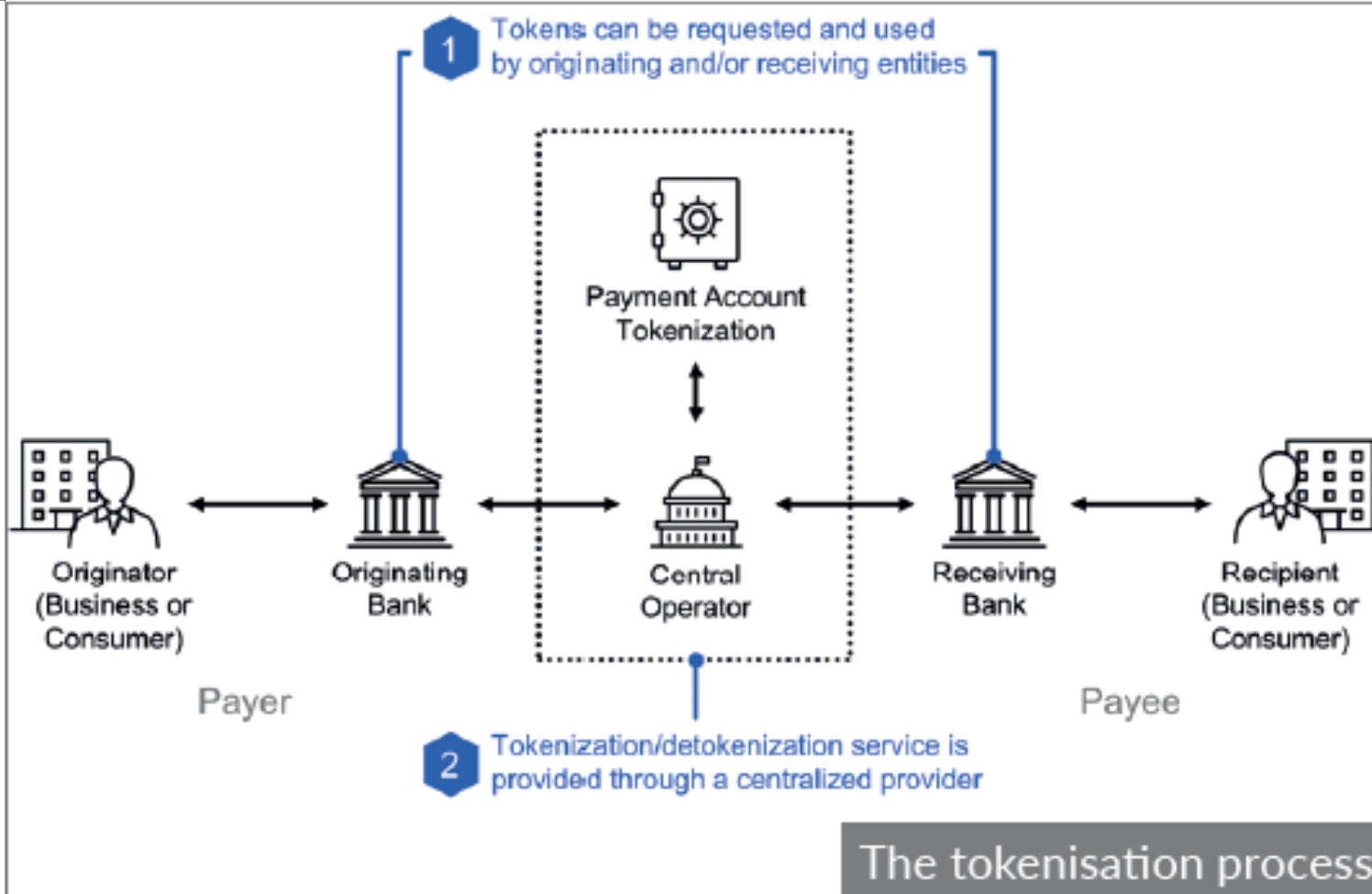
- From October 1, the **Reserve Bank of India's card-on-file (CoF) tokenisation norms** have kicked in.
- Now, for any purchases done online or through mobile apps, merchants, payment aggregators and payment gateways will **not be able to save crucial customer credit and debit card details such as three-digit CVV and expiry date.**
- In **September 2021**, the **RBI prohibited merchants from storing customer card details** on their servers with effect from January 1, 2022, and mandated the adoption of card-on-file (CoF) tokenisation as an alternative.

## Tokenisation

- Tokenization refers to the process of replacing actual card details with an alternate code called **token**.
- Cardholders can **request an entity** called token requestor to generate a token. A **token requestor** is an entity that accepts a tokenization request from the customer and passes it on to the **card network** to issue a corresponding token. In other words, the **token requestor acts as an intermediary between the customer and the card network.**
- A cardholder can initiate the request for tokenization on an app provided by the token requestor. The token requestor then forwards the request to the card network, which will issue a token.

# Tokenisation

- This **token is unique** and is created for a **combination of card, token requestor, and device**. In other words, for each card, token requestor, and device, a token is generated.
- **Benefits** : Tokenized transactions are considered safer as the actual card details are not shared with the merchant during the transaction.



# Pilot launch of e-rupee

Relevance: Prelims & Mains Paper III; Economics

## Launch in some time

- The Reserve Bank of India (RBI) indicated that it will soon **commence limited pilot launches of e-rupee (e`), or Central Bank Digital Currency (CBDC) or digital rupee, for specific use cases.**
- It has hinted at **two broad categories** for the use of e-rupee — **retail** and **wholesale** — taking the payment system in the country to a new level where the common people and businesses will be able to use the digital currency seamlessly for various transactions.

## Nature

- E-rupee is the **same as a fiat currency** and is **exchangeable one-to-one with the fiat currency.** Only its form is different.
- It can be **accepted as a medium of payment, legal tender and a safe store of value.** The digital rupee would appear as liability on a central bank's balance sheet.

## Forms of CBDC

- The central bank says e-rupee, or CBDC, can be structured as **token-based or account-based.**
- A **token-based** CBDC would be a bearer instrument like banknotes. A token-based CBDC is viewed as a preferred mode for **CBDC-Retail** as it would be closer to physical cash.
- An **account-based system** would require maintenance of record of balances and transactions of all holders of the CBDC and indicate the ownership of the monetary balances. In this case, an intermediary will verify the identity of an account holder. This system can be considered for **CBDC-Wholesale.**

## Model for issuance

- There are two models for issuance and management of CBDCs under the RBI's consideration — **direct model (single tier model)** and **indirect model (two-tier model)**. In the direct model, the central bank will be responsible for **managing all aspects of the digital rupee system such as issuance, account-keeping and transaction verification**.
- An indirect model would be one where the central bank and other intermediaries (banks and any other service providers), each play their respective role. In this model, the central bank will issue CBDC to consumers indirectly through intermediaries and any claim by consumers will be managed by the intermediary.

## Advantages of e-rupee

- The RBI said the key motivations for exploring the issuance of CBDC in India among others include reduction in **operational costs involved in physical cash management**, fostering **financial inclusion**, bringing **resilience**, **efficiency** and **innovation in the payments system**.
- It will **add efficiency to the settlement system** and **boost innovation in cross-border payments space** and provide the public with uses that any private virtual currencies can provide, without the associated risks.

# Payments through UPI to be possible in Europe soon

Relevance: Prelims & Mains Paper III; Economics



## Why in news?

- Indian travellers to Europe would soon be able to make payments from their Indian bank accounts using the Unified Payments Interface (UPI).
- The facility would be available only in some parts of Europe to begin with.
- National Payments Corporation of India's (NPCI) international arm entered into a pact with payments services operator Worldline.

## How payment will be made?

- It will be mandatory for users to have an Indian bank account with an UPI activated on their accounts. The users will also need an app to make UPI payments, like the BHIM app.
- The service will be available at point-of-sale terminals deployed by Worldline. Alongside UPI, NPCI's card network RuPay will also be accepted.
- The UPI will be facilitated by QR code.
- However, it is noteworthy that the payments made by customers using UPI will be charged in the local currency and not INR. This will attract a currency conversion charge levied by the banks, as it is in the case of card payments.

## Other international arrangements

- Earlier this year, NPCI and the UAE-based Mashreq Bank's NEOPAY entered into a partnership, which allowed tourists and migrants to the UAE with Indian bank accounts to be able to make UPI payments.
- Globally, UPI is accepted in Bhutan and Nepal.
- Further, in Singapore, a project to link UPI with the city-state's instant payment system PayNow is being undertaken by the RBI and the Monetary Authority of Singapore.



# Digital banking units

Relevance: Prelims & Mains Paper III; Economics

## Digital banking units

- A digital banking unit is a specialised fixed point business unit or hub, housing a certain minimum digital infrastructure for delivering digital banking products and services as well as servicing existing financial products and services digitally in self-service mode at any time.
- Recently, Prime Minister Narendra Modi dedicated 75 digital banking units to the nation. 75 Digital Banking Units (DBUs) have been established in 75 districts of the country by Scheduled Commercial Banks.

## Services offered

- Commercial banks (other than regional rural banks, payment banks and local area banks) with past digital banking experience are permitted to open DBUs.
- As per the RBI, each DBU must offer certain minimum digital banking products and services.
- The products and services include saving bank accounts under various schemes, current accounts, fixed deposit and recurring deposit accounts, digital kits for customers, mobile banking, Internet banking, debit cards, credit cards, and mass transit system cards, digital kits for merchants, UPI QR codes, BHIM Aadhaar and point of sale (PoS).
- Other services include making applications for and onboarding customers for identified retail, MSME or schematic loans. This may also include end-to-end digital processing of such loans, starting from online application to disbursement and identified government-sponsored schemes that are covered under the national portal.

# Shares within lock-in period are not 'quoted' shares

## Relevance: Prelims; Economics

### Supreme Court

- Recently, in the 30-year-old matter over gift tax in a share transaction, the Supreme Court ruled that **shares within the lock-in-period are not 'quoted shares'**, and thus they need to be valued as 'unquoted shares' to determine the gift tax liability.
- These equity shares being under the lock-in period **could not be traded** and, therefore, remained unquoted in any recognised stock exchange.

### Details

- The gifted shares were not valued as per the quotation of these shares on the stock exchange.
- The tax authority characterised such a transfer as having been effected for an inadequate consideration, and hence treated it as a "deemed gift" chargeable under the Gift Tax Act. The tax authority valued them by treating them as 'quoted shares'.

### Quoted & unquoted

- **'Quoted share'** in relation to an equity share or a preference share means a **share quoted on any recognised stock exchange** with regularity from time to time. The quotations of such shares are based on current transactions made in the ordinary course of business. An **'unquoted share' is simply a share that is not a quoted share.**
- So according to the SC order, if the locked-in shares of the promoter falls in the 'unquoted share' category, their price treatment can't be that of the 'quoted shares', and so gift tax will not be applicable.

# CCI fined Google over Rs 1,300 crore

Relevance: Prelims & Mains Paper III; Economics

## CCI orders

- The Competition Commission of India (CCI) has imposed a provisional penalty of Rs 1,337.76 crore (\$162 million) on Google for “**abusing its market dominant position**” in **multiple categories related to the Android mobile device ecosystem** in the country.
- The CCI has given Google 30 days to provide the requisite financial details and supporting documents – the final penalty may increase.

## Charges against Google

- The CCI said that the **licencing of Google Play Store should not be linked to the requirement of pre-installing Google search, Chrome browser, YouTube, Google Maps, Gmail or any other Google application.**
- The CCI also said that Google will have to **allow users to choose their default search engine during the initial device setup.**
- It asked Google not to restrict the ability of app developers to distribute their apps through **side-loading** – offering their apps outside of Google’s Play Store. **This is significant since Google has, for long, cautioned users against side-loading apps, calling it a potential security threat.**

## How the case started

- This is the second time that the tech giant has been fined by the CCI. In **2018**, it had imposed a fine of **Rs 136 crore** on Google for unfair business practices in the Indian market for online search.
- Google is facing a series of antitrust cases in India. The **competition watchdog is also looking into Google's business conduct in the smart TV market and its in-app payments system.**

## Putting CCI's penalty in context

- The **quantum** of CCI's fine on Google is significantly **lower** as compared to penalties imposed on Google in other jurisdictions.
- Google has been penalized in **European Union** with a fine **more than 4 billion euros (\$3.99 billion)** for anti-competitive practices.

# When does RBI step in to monitor a bank?

Relevance: Prelims & Mains Paper III; Economics

## Why in news?

- The Reserve Bank of India (RBI) has placed Kerala-based private bank, Dhanlaxmi Bank under tight monitoring.
- The RBI's move comes in the wake of the intense court battle waged by a group of minority shareholders against the bank's management team over inadequate financial disclosures, rising expenses, and general mismanagement of the business.

## Deteriorating financial condition

- Dhanlaxmi Bank's capital to risk weighted assets ratio (CRAR) dropped to around 13% at the end of March this year from 14.5% a year ago, prompting the RBI to take stock of the financial health of the bank.
- Under Basel-III norms, which were adopted by financial regulators across the globe in the aftermath of the financial crisis of 2007-08, banks are supposed to maintain their CRAR at 9% or above.
- The RBI's move to increase its oversight on Dhanlaxmi Bank is seen as a response to the deterioration in the bank's capital adequacy.
- It has even been placed under the prompt corrective action framework (PCA) by the RBI to deal with serious deteriorations in its financial position.
- Under the PCA, the RBI places restrictions on lending by troubled banks and keeps a close eye on them until their financial position improves sufficiently.

## Capital adequacy

- Capital adequacy is an indicator of the ability of a bank to survive in case it suffers significant losses on its loan book.
- A bank cannot continue to operate if the total value of its assets drops below the total value of its liabilities as it would wipe out its capital (or net worth) and render the bank insolvent.

## Capital to risk weighted assets ratio

- The CRAR is a ratio that compares the value of a bank's capital (or net worth) against the value of its various assets weighted according to how risky each asset is.
- It is used to gauge the risk of insolvency faced by a bank.
- The riskier a type of asset held in a bank's balance sheet, the higher the weightage given to the value of the asset while calculating the bank's capital adequacy ratio. This causes the capital adequacy ratio of the bank to drop, thus signalling a higher risk of insolvency during crises.
- In other words, the CRAR tries to gauge the risk posed to the solvency of the bank by the quality or riskiness of the assets on the bank's balance sheet.

# Google fined again by CCI

**Relevance: Prelims & Mains Paper III; Economics**

## Why in news?

- The Competition Commission of India (CCI) imposed a Rs 936.44-crore penalty on Google for “abusing its dominant market position with respect to its Play Store policies”.
- This comes just days after the antitrust regulator imposed a penalty of Rs 1,338 crore on it for “abusing its dominant position in multiple categories related to Android mobile device ecosystem” in India.

## CCI order

- Issuing a cease-and-desist order, the CCI directed Google to modify its conduct within a defined timeline. This includes allowing mobile app developers to use third-party payment services on its app store.
- Google has been given 30 days to provide the requisite financial details and supporting documents.
- The CCI said Play Store policies require app developers to exclusively and mandatorily use Google Play’s billing system (GPBS) not only for receiving payments for apps and other digital products but also for certain in-app purchases.
- App developers cannot provide users with a direct link to a webpage containing an alternative payment method.



# SEBI barred and fined Bombay Dyeing and related entities

Relevance: Prelims & Mains; Economics

## Why in news?

- On October 22, the Securities and Exchange Board of India (SEBI) barred ten entities, including The Bombay Dyeing & Manufacturing Company Ltd (BDMCL) and its promoters Nusli Wadia, Ness Wadia and Jehangir Wadia from trading in the securities market for a period of two years.
- This was on account of alleged financial misrepresentation made by the entities with respect to their real-estate business.
- The market regulator also imposed a fine of ₹15.75 crore on the entities.

## Exports of Basmati

- BDMCL was shown selling flats to Scal Services Ltd. Scal Services Ltd is directly or indirectly (through other companies) owned by Wadias only, who are owners of BDMCL as well.
- Scal Services Ltd acted as bulk purchaser of flats from BDMCL.
- SEBI noted that had the financial statements of Scal been consolidated (with the main company), the inter se sales of flats from BDMCL to SCAL would not have been accounted for and therefore the 'sales' and 'profit' figures of BDMCL would have been reduced.
- As per SEBI, BDMCL was able to inflate its sales by ₹2,492.94 crore and consequently profit by ₹1,302 crore between FY 2011-12 to FY 2017-18. Thus, it was able to present itself as a profit-making enterprise. This, advertently, helped maintain its share price.

# Who designs rupee notes, and how?

Relevance: Prelims & Mains; Economics

## Why in news?

- Several **Aam Aadmi Party (AAP) leaders**, led by party chief Arvind Kejriwal, recently asked the government to put **pictures of Goddess Lakshmi and Lord Ganesh** on currency notes in order to bring “prosperity” to the country.

## Design and Denomination of Currency

- Any change in **design or denomination of a currency note** has to be approved by the **RBI’s Central Board and the central government**.
- The **central bank internally works out a design**, which is put before the **RBI’s Central Board**.
- **Section 22 of The Reserve Bank of India Act, 1934**, gives RBI the “sole right” to issue banknotes in India.
- **Section 25** states that “the design, form, and material of bank notes shall be such as may be approved by the Central Government after consideration of the recommendations made by the [RBI’s] Central Board”.

## Design and Denomination of Coins

- Changes in the **design of coins** are the **prerogative of the central government only**.
- The **Coinage Act, 2011** gives the central government the power to **design and mint** coins in various denominations. In the case of coins, the **role of the RBI is limited to the distribution of coins** that are supplied by the central government.
- The government decides on the quantity of coins to be minted on the basis of indents received from the RBI on a yearly basis, the central bank says.
- **Coins are minted in four mints** owned by the Government of India in **Mumbai, Hyderabad, Kolkata and Noida**.

## RBI's currency management

- The **Reserve Bank, in consultation with the central Government and other stakeholders, estimates the quantity of banknotes** that are likely to be needed denomination-wise in a year, and places indents with the various currency printing presses for their supply.
- **Two of India's currency note printing presses (in Nasik and Dewas) are owned by the Government of India; two others (in Mysore and Salboni) are owned by the RBI through its wholly owned subsidiary, Bharatiya Reserve Bank Note Mudran Ltd (BRBNML).**

ENVIRONMENT  
&  
BIODIVERSITY

# Faster acidification of Arctic waters

Relevance: Prelims & Mains Paper III; Environment

## Research findings

- Seawater is normally alkaline, with a pH value of around 8.1.
- A team of researchers has flagged that the acidity levels of western region of the Arctic Ocean is increasing three to four times faster than ocean waters elsewhere.
- Scientists have predicted that by 2050, Arctic sea ice in this region will no longer survive the increasingly warm summers.

## Impact

- The ocean's chemistry will grow more acidic, creating life-threatening problems for the diverse marine population of sea creatures, plants and other living things that depend on a healthy ocean.
- Crabs, for example, live in a crusty shell built from the calcium carbonate prevalent in ocean water.
- Polar bears rely on healthy fish populations for food, fish and sea birds rely on plankton and plants, and seafood is a key element of many humans' diets.

# Faster acidification of Arctic waters

Relevance: Prelims & Mains Paper III; Environment

## Reasons

- Scientists have pointed out that sea ice melt contributes to rise in pH levels of oceans waters in 3 ways:
  1. **Faster absorption by melted water** : The water under the sea ice, which had a deficit of carbon dioxide, now is exposed to the atmospheric carbon dioxide and can take it up freely.
  2. **Seawater mixed with meltwater remains on surface**: The seawater mixed with meltwater is light and can't mix easily into deeper waters, which means the carbon dioxide is concentrated at the surface.
  3. **Lack of bicarbonate ions**: The meltwater **dilutes the carbonate ion concentration** in the seawater, weakening its ability to neutralise the carbon dioxide into bicarbonate and rapidly decreasing ocean pH.

Q1. Which of the following are the possible reasons behind accelerated oceanic acidification in Arctic waters:

1. Meltwater arising from global warming has more capacity to absorb carbon dioxide than ice.
2. Arctic region is witnessing faster global warming than the other regions of the world.
3. Meltwater remains on the surface of the oceans because it is lighter in weight, leading to waters with higher carbon dioxide absorption on the surface.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3



# What is GRAP?



**Relevance: Prelims & Mains Paper III; Environment**

## Why in news?

- The **Commission for Air Quality Management (CAQM)** said recently that measures under **'Stage-1' of the Graded Response Action Plan (GRAP)** will be enforced in the **NCR** with immediate effect.
- The order came after Delhi's **AQI deteriorated to be in the 'poor' category**. Other parts of the NCR, including Gurgaon, Noida and Greater Noida, also recorded 'poor' air quality.

## GRAP

- GRAP is a **set of emergency measures that kick in to prevent further deterioration of air quality once it reaches a certain threshold**.
- **Stage 1** of GRAP is activated when the **AQI is in the 'poor' category (201 to 300)**.
- The second, third and fourth stages will be activated **three days** ahead of the AQI reaching the **'very poor' category (301 to 400)**, **'severe' category (401 to 450)** and **'severe +' category (above 450)** respectively.
- For this, the CAQM is relying on air quality and **meteorological forecasts by the Indian Institute of Tropical Meteorology (IITM) and the India Meteorological Department (IMD)**.
- **Measures being imposed under the previous categories will continue** even when the subsequent category is activated, that is, if measures under Stage-2 are activated, measures under Stage-1 will continue to remain in place.

# What is GRAP?

**Relevance: Prelims & Mains Paper III; Environment**

## In the past

- The GRAP was first notified in January 2017 by the Ministry of Environment, Forest and Climate Change.
- This was based on a plan that was submitted by the Central Pollution Control Board (CPCB) in November 2016.
- According to the notification, the task of implementing the GRAP fell on the now dissolved Environment Pollution (Prevention and Control) Authority for the NCR.

## GRAP Now

- From 2021 onwards, the GRAP is being implemented by the CAQM.
- The CAQM revised the Graded Response Action Plan earlier this year. The Revisions are:
  1. This year, measures are pre-emptive and will kick in based on forecasts in an attempt to prevent the AQI from deteriorating further. In the earlier version, measures kicked in after pollution concentrations reached a certain level.
  2. The older version of the GRAP was enforced based only on the concentration of PM2.5 and PM10. This year, GRAP is being enforced based on the AQI, which takes other pollutants also into account, such as ozone, sulphur dioxide and oxides of nitrogen.

# What is GRAP?

**Relevance: Prelims & Mains Paper III; Environment**

## Who will implement?

- The CAQM has constituted a **sub-committee** for the operationalization of the GRAP.
- This body **includes officials from the CAQM, member secretaries of pollution control boards of Uttar Pradesh, Delhi, Haryana, Rajasthan, the Central Pollution Control Board, a scientist from the IMD and one from the IITM, and Dr T K Joshi, Health Advisor, Centre for Occupational and Environmental Health, Maulana Azad Medical College.**
- The sub-committee is required to meet frequently to issue orders to invoke the GRAP.
- The **orders and directions of the CAQM will prevail in case of any conflict between directions issued by the State governments and the CAQM.**
- **Measures** under the different categories of the plan are to be enforced by the pollution control boards of the NCR states and the concerned departments and agencies, including the traffic police, the Transport Department, etc.

## Actions

- Actions under Stages II, III and IV will be invoked **three days in advance of the AQI reaching the projected level.**

## Stage 1 (AQI 'Poor' – 201 to 300)

- (1) Stopping all construction and demolition activities with plot size of 500 square metres or more which have not been registered on dust mitigation monitoring portals
- (2) mechanised sweeping, water sprinkling on roads
- (3) enforcing guidelines on use of anti-smog guns at construction sites
- (4) enforcing ban on open burning of waste and PUC (pollution under control norms) for vehicles
- (5) DISCOMs to minimise power supply interruptions in NCR
- (6) Encourage offices to start unified commute for employees to reduce traffic

## Stage 2 (AQI 'Very poor'– 301 to 400)

- (1) Not allowing coal/firewood in tandoors at hotels
- (2) stopping use of diesel generator sets except for essential and emergency services (hospitals, railways, metro services, airports, water pumping stations, “projects of national importance”)
- (3) enhance parking fees to discourage private transport
- (4) augment CNG/ electric bus and metro services by procuring additional fleet and increasing the frequency of service

### Stage 3 (AQI 'Severe' – 401 to 450)

- (1) Ban on construction and demolition activities except railway, metro, hospitals, sanitation projects etc, linear public projects like highways, roads, flyovers
- (2) closure of industries that have PNG supply and are not running on approved fuels. In industrial areas that don't have PNG supply, industries not running on approved fuels will operate only for five days a week
- (3) State governments in NCR may impose restrictions on BS III petrol and BS IV diesel four wheelers

### Stage 4 (AQI 'Severe +' – more than 450)

- (1) Stop entry of truck traffic into Delhi (except for essentials, CNG and electric trucks)
- (2) Ban on plying of Delhi registered diesel medium and heavy goods vehicles in Delhi, except for essentials
- (3) Ban on plying of 4-wheeler diesel vehicles in Delhi and districts of NCR bordering Delhi, except BS-VI vehicles and vehicles used for essential or emergency services
- (4) State Governments may consider additional emergency measures like closure of schools, plying of vehicles on odd-even basis
- (5) NCR State governments to decide on allowing public, municipal and private offices to work on 50% strength and the rest to work from home
- (6) Ban C&D activities in linear public projects such as highways, roads, flyovers

# Green Crackers

**Relevance: Prelims & Mains Paper III; Environment**

## Why in News?

- Recently, the Union territory of **Chandigarh** has **allowed the use of Green Crackers**, but prohibited the burning of conventional crackers.
- As Diwali is nearing, there is increase in promotion of Green crackers at the cost of conventional crackers.

## Green Crackers

- 'Green Crackers' are developed to **minimize the levels of air pollution** caused due to burning of conventional crackers.
- Green crackers are called so because as compared to the conventional crackers, **these crackers releases reduced particulate matter and reduced emissions of gases such as nitrous oxides and sulphur dioxide.** Also, Green crackers **don't contain harmful chemicals like lithium, barium, lead, and arsenic.**
- The **conventional crackers** are manufactured using chemicals such as **barium nitrate, antimony and potassium nitrate** which have harmful effect on the health of human beings and the environment.
- Further, burning of crackers is also associated with **increasing levels of air pollutants**, aggravating the air quality situation especially in mega cities.

Ingredient in the cracker	Effect on health	Green Crackers
Charcoal and sulphur are used as primary fuel in the crackers. Primary fuel has the appearance of black coloured powder.	These materials are carcinogenic and they can also cause respiratory diseases.	Reduces the raw materials or eliminates them. Use zeolite, clay and silica gel for burning.
Barium nitrate is used as an oxidiser for combustion. It is the key pollutant in the crackers.	Barium nitrate can cause irritation in the nose, throat and lungs. High exposure to barium nitrate can also cause nausea and irregular heartbeat.	Substituted with potassium nitrate and strontium nitrate
Strontium, lithium and barium are used as colouring agent. Strontium and lithium give red colour and barium gives orange colour, when lit.	Strontium is toxic as it can replace calcium in the body. Lithium and barium release harmful fumes.	Use has been eliminated
Apart from Nitrates, chlorates and perchlorates are also used as oxidising agents	Can remain in air for days and are poisonous; Affects the growth of children.	Fireworks using chlorate are banned in India



## Definition of Green Crackers

- As compared to conventional crackers, Green crackers on burning produce at least 30% less Particulate Matter (PM) and gaseous emissions (minimum 20% reduction in PM and 10% reduction in gaseous emissions such as sulphur dioxide, nitrous oxide and others).
- Green crackers need not necessarily be crackers with completely new constituents. The conventional crackers can also be made green by making some changes in the existing chemical composition.

## Development of these crackers

- The National Environmental Engineering Research Institute (NEERI), a part of the Council of Scientific and Industrial Research (CSIR), is the primary body which was assigned responsibility for the development of green crackers.
- NEERI-CSIR worked with labs for the development of green crackers.
- After development of green crackers, the process to manufacture such crackers was passed on to the existing traditional cracker manufacturers.

## Names and Qualities of Green Crackers

- Popular green crackers are **Safe Water Releaser (SWAS)**, **Safe Thermite Cracker (STAR)** and **Safe Minimal Aluminium (SAFAL)**.
  - **SWAS** crackers **release water vapour along with air in certain cases**. The water vapour acts as a dust suppressant and dilutes the gaseous emissions.
  - **SWAS** and **STAR** crackers specifically eliminate the usage of the harmful chemicals such as barium nitrate, sulphur and nitrous oxides.
  - **SAFAL** crackers minimise the usage of aluminium by replacing it with magnesium and magnesium-based compounds (Aluminium is used only as a flash powder for initiation). This leads to a reduction in particulate matter by 35 to 40%.
- All these crackers have **sound intensity similar to that of conventional crackers in the range of 105-110 dBA**. Thus, the green crackers, even though are less polluting, do not compromise on the sound levels.
  - Further, the green crackers are also **cost effective** as they **cost 20 to 30% less** than the conventional crackers.

# Tipping points of global warming

Relevance: Prelims & Mains Paper III; Environment

## Meaning

- Climate tipping points are the **thresholds beyond which changes in the earth's systems become uncontrollable and irreversible.**
- Presently, the world is worried about restricting global warming to **within 1.5 degree or 2 degree Celsius.**
- A **new study** has found that **even the current level of average global temperatures — about 1.1 degree Celsius higher than preindustrial times** — is enough to trigger tipping points. This study has been published recently in **Science journal.**

## Tipping points

- Over the years, researchers have identified **at least 15 tipping points, each correlated with different levels of temperature rise.**
- Some of these Climate tipping points that have been identified in different studies are:
  - 1. Disintegration of **Greenland ice sheet**
  - 2. Spontaneous reduction in **Amazon forest cover**
  - 3. Melting of glaciers, or softening of the **permanently frozen grounds** in the polar regions

## Tipping points at work

- Rising temperatures are causing largescale changes in these climatic systems. However, it is still possible, at least theoretically, to arrest these changes, or even reverse them over time.
- But once the tipping points are crossed, this possibility no longer exists. It is like the dam burst moment.
- The process of change becomes self-perpetuating. It feeds into itself and accelerates the process. What is worse, it also feeds into and accelerates other linked processes.

## Greenland ice sheet

- The Greenland ice sheet, which is already melting, is a good example to illustrate this process.
- As it melts, the height of the ice sheet gradually reduces. In the process, a larger part of it gets exposed to warmer air.
- That is because air is warmer at lower altitudes than at higher altitudes.
- The exposure to warmer air expedites the process of melting.
- Once the tipping point is crossed, this becomes a self-sustaining and cyclic system.
- The system does not reverse even if the global temperatures stop rising.

## Amazon Forests

- Amazon forests are another example.
- These play a very **important role in causing rains** in the region.
- **If deforestation continues unabated, there would be fewer and fewer trees**, which would reduce rainfall, causing further stress on the trees.
- Once again, it develops into a **self-perpetuating process**.

## Permafrost regions

- Several areas of the world remain **frozen throughout the year**. These are known as permafrost. Because they have remained in this state for centuries, they **hold large amounts of carbon — from plants and animals that died and decomposed over the years — trapped in them**.
- It is estimated that the **permafrost layers hold as much as 1,700 billion tonnes of carbon**, mainly in the **form of carbon dioxide and methane**. In **comparison, the global emissions of carbon in a year are in the range of 40 billion tonnes**.
- The softening or melting of permafrost layers is **already releasing some carbon into the atmosphere**. This release of carbon is adding to the warming, which in turn is expediting the process of softening of permafrost layers. This too has a tipping point beyond which it would become a self-perpetuating cycle.

# Anti-smog guns

**Relevance: Prelims & Mains Paper III; Environment**

## Meaning

- Anti-smog guns are **mounted on vehicles**. These guns spray water on fine mist, in order to the dust suspended in air.
- This winter, **Delhi** will have more anti-smog guns than in previous years. While only large construction sites of **20,000 sqm or more** needed them last year, they have now been mandated by the Delhi government at **smaller construction sites of 5,000 sqm or more**.
- The **number** of anti-smog guns that are required to be placed **varies** according to the size of the site, with a maximum of four being required at sites of 20,000 sqm or more.

## Supreme Court orders

- In November 2019, the Supreme Court asked the CPCB to ascertain the efficacy of anti-smog guns and submit a report in 10 days.
- A **Supreme Court order from January 2020 then mandates the use of anti-smog guns at large construction sites, road construction stretches and dust-prone traffic corridors**.

## Questionable effectiveness

- In winter, conditions are dry and with repeated action on the top soil, it gets lifted. Due to low humidity, this dust is unable to settle.
- If the anti-smog gun is used along the roadside, the particulate matter may settle. It may reduce particulate pollution, but it is not a permanent solution.
- In emergency situations, where there is a fire or construction and demolition dust, this can be applied so that the situation is not aggravated in nearby areas. For the entire city, it is not possible. Water itself is also an important resource.
- Another academician claimed that he was not aware of any study or data to support or refute the effects of anti-smog guns. China has tried artificial rain to control haze. But that works at scale.
- Rain droplets remove pollutants, water has that ability which is called wet scavenging. That is the idea that is being pursued. Whatever comes beneath the droplets, the droplets will carry the particles and gases.
- Experts say that there has been no thorough scientific analysis so far to determine what impact they have, and there could be some brief effect at best.



# Two more Indian beaches get 'Blue Flag'

Relevance: Prelims & Mains Paper III; Environment

## Why in news?

- Two more beaches, both in Lakshadweep, have been accorded the 'Blue Flag' tag.
- India now has 12 "blue beaches."
- The two new beaches to have been awarded the eco-label are **Minicoy Thundi beach and Kadmat beach**, both in Lakshadweep.

## Meaning

- The other 10 Indian beaches on the list are:
  1. Shivrajpur in Gujarat's Devbhumi Dwarka district;
  2. Ghogla beach in Diu;
  3. Kasarkod (Uttara Kannada) and
  4. Padubidri (Udupi) in Karnataka;
  5. Kappad (Kozhikode) in Kerala;
  6. Eden beach in Puducherry;
  7. Kovalam (Chennai) in Tamil Nadu;
  8. Rushikonda (Visakhapatnam) in Andhra Pradesh;
  9. Golden beach in Puri, Odisha; and
  10. Radhanagar Swarajdeep in Andaman and Nicobar.
- **Kovalam and Eden** got the Blue Flag last year. The other **eight beaches** received the certification in **2020**, and were re-certified last year.

## 6 RELAXATION OF CRZ RULES AND BLUE FLAG BEACHES

The 'Blue Flag' beach label promotes 'eco-tourism model'. The label is accorded to those beaches which provide tourists and beachgoers clean and hygienic bathing water, facilities/amenities, a safe and healthy environment, and adopt practices of sustainable development.

The Blue Flag certification is given by a Non-governmental Organization, the Foundation for Environment Education (FEE) with headquarters in Denmark. The Blue Flag Programme originated in 1985 in France. Presently, the programme is popular in almost all the geographies of the world.

To attain the blue flag certification, a beach should meet the 33 stringent criteria under the following four heads:

1. Environmental Education and information
2. Bathing Water Quality
3. Environment Management and Conservation
4. Safety and Services.

**Relaxation of CRZ rules:** To achieve blue flag certification, certain infrastructure needs to be created in the beaches such as a solar power plant, grey water treatment plants, portable toilet blocks, seating facilities and CCTV surveillance. The CRZ rules were relaxed by the Environment Ministry via January 2020 notification to permit construction of such infrastructure in the beaches. However, this infrastructure should not be constructed within a distance of 10 meters from the High Tide Line.

### India's beaches with blue flag certification

As of November 2021, 10 beaches of India have been awarded the blue flag certification. These are:

1. Kovalam (Tamil Nadu)
2. Shivrajpur (Dwarka-Gujarat)
3. Ghoghla (Diu)
4. Kasarkod (Karnataka)
5. Padubidri (Karnataka)
6. Kappad (Kerala)
7. Rushikonda (Andhra Pradesh)
8. Golden (Puri, Odisha)
9. Radhanagar (A&N Islands)
10. Eden beach (Puducherry)

Japan, South Korea and UAE are the only other Asian countries to have Blue Flag beaches. Spain has the highest number of blue flag beaches in the world followed by Greece and Turkey.

# Emissions Gap Report 2022

**Relevance: Prelims & Mains Paper III; Environment**

## Why in news?

- The **Emissions Gap Report 2022: “The Closing Window – Climate crisis calls for rapid transformation of societies”** was released recently by the United Nations Environment Programme (UNEP).
- The report focused on the need for countries to take significant steps to reduce greenhouse gas emissions ahead of the United Nations Climate Change Conference 2022 (UNFCCC COP 27) that will begin on November 6 in Egypt.

## Findings of report

- The annual report assesses the gap between the pledges taken by different countries to reduce greenhouse gas emissions and the estimated reduction required to maintain the average global temperature rise to below 2°C, preferably 1.5°C, by the end of this century.
- According to the report, With the current policies, the global temperature is expected to rise by 2.8°C by the end of this century, and emissions should be cut down by 45 per cent globally to maintain the goal temperatures.
- It emphasised transformative solutions across sectors, including food systems.

## Why focus on the food systems industry?

- Food systems comprise all food products, derived from crop and livestock production, forestry, fisheries, and the larger socio-economic systems surrounding them.
- While other sectors are dominant in the global climate action plans, food systems are neglected. This often prevents the people from recognizing emissions produced as a result of their consumption and production patterns, as well as of livestock.

## New Zealand

- In a first, New Zealand recently planned to tax agricultural emissions.
- New Zealand is one of the world's largest exporters of dairy and meat products. However, the agricultural production processes result in significant greenhouse gas emissions.
- Mostly, biogenic methane and nitrous oxide are responsible for about half of New Zealand's gross emissions.

## Livestock emissions

- Emissions from livestock mainly include **carbon dioxide (from urea)**, **nitrous oxide (from livestock dung and urine)**, and **methane (from belching)** among others.
- They contribute towards the greenhouse effect as due to these gases, heat gets trapped around the surface of the earth and causes global warming.
- While **nitrous oxide is emitted through livestock dung and urine**, **Manure and gastrointestinal releases** account for about **32 per cent of human-caused methane emissions**.

## Focus on Methane

- The process of **cow belching** releases more **methane** into the environment due to enteric **fermentation**, a digestive process where complex sugars are converted into simpler molecules to be absorbed into the bloodstream, producing methane as a by-product. Whenever a farm animal digests food, methane is released into the atmosphere.
- Further, the **cultivation of paddy**, which floods the fields, prevents oxygen from penetrating the soil and creates **suitable conditions for methane-emitting bacteria**. This accounts for **roughly 8 per cent** of human-linked emissions.
- An IPCC research showed **methane is responsible for at least a quarter of today's global warming**.
- An assessment by the **UNEP and Climate and Clean Air Coalition in 2021** found that **cutting human or farming-related methane emissions by "45 per cent this decade"** is key in the global battle against climate change.

SCIENCE  
&  
TECHNOLOGY



# Vande Bharat train 2.0

Relevance: Prelims & Mains Paper III; S&T

## About Version 2.0

- Prime Minister Narendra Modi inaugurated the new Vande Bharat train. The train travelled for about half an hour from **Gandhinagar to Kalupur** in Gujarat.
- Modi had also inaugurated the Vande Bharat when it was **first launched in Delhi in 2019**.
- The train, the **third in the Vande Bharat series**, is being dubbed 'Vande Bharat 2.0', because of certain upgrades it has received over its predecessors.

## Upgradation in version 2.0

- **Cost** : The new trainset costs around Rs 115 crore — Rs 15 crore more than the last version.
- **Better acceleration** - For starters, this train reaches a top speed of 160 km per hour in 129 seconds, around 16 seconds faster than its predecessor. This is because this train weighs around 392 tonnes, **38 tonnes lighter** than the last one, and needs to run almost a km less to attain its top speed.
- **Better Riding index** - At a standard speed of 115 km per, its riding index is 3.26, better than 3.62 attained at the same speed by the earlier version. In layman's terms, how comfortable and steady the passenger is while the train is in motion is roughly the idea behind a riding index.
- **Anti-collision** - In terms of safety features, the new train comes fitted with the automatic anti-collision system **Kavach**, which the previous trains did not have.

# Vande Bharat train 2.0

Relevance: Prelims & Mains Paper III; S&T

## Targets

- India has embarked on a mission to roll out 400 Vande Bharats.
- By August 2023, the country is to introduce 72 more such trains, taking the total to 75.
- 3 Vande Bharat trains have already been launched.

Q1. Consider the following statements about Vande Bharat version 2.0 Trains:

1. The Vande Bharat 2.0 trains are less in weight as compared to version 1.0 trains.
2. The version 2.0 trains are costlier to produce than version 1.0 trains.
3. Anti collision device, satellite based Kavach system, is installed in Version 2.0, but it was not installed in version 1.0.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

# Stress Fracture

**Relevance: Prelims & Mains Paper III; Science**

## Why in news?

- **Fast bowlers** have faced the issue of stress fracture.
- A fast bowler routinely exerts **force of eight or more times their body weight on their lower half when delivering the ball.**
- Such extreme levels of force mean fast bowling is an **inherently unnatural activity**, which inevitably causes all kinds of injuries among its practitioners.

## What is Stress fracture?

- A stress reaction, akin to a **deep bruise**, can occur **due to pressure on a particular point on the bone** due to repetitive overuse or trauma. A stress reaction, **if left untreated, can develop into a stress fracture – a small crack in the bone.**
- **Commonly, it occurs in load or weight-bearing areas**, such as the foot, shin, hip or lower back – in the five lumbar vertebrae, which are part of the spinal column between the rib cage and the pelvis.
- It is also **common in long-distance runners and fast bowlers**, in whom immense strain can build up in such load-bearing areas.

# Indigenous Light Combat Helicopter inducted

Relevance: Prelims & Mains Paper III; Science & Technology

## Why in news?

- Recently, the indigenously developed **Light Combat Helicopter (LCH)** was **formally inducted** into the **Army** at Bangalore and into the **IAF** on at Jodhpur.
- It has been developed by state-owned **Hindustan Aeronautics Ltd (HAL)**.

## Need of LCH

- **Requirements** : It was during the 1999 Kargil war that the need was first felt for a homegrown **lightweight, highly agile, multi-role dedicated attack helicopter** that could hold precision strikes in **all Indian battlefield scenarios**.
- **All Indian conditions** : Indian conditions meant an assault helicopter that could operate in very **hot deserts** and also in **very cold high altitudes**, in **counter-insurgency scenarios to full-scale battle conditions**.
- **HAL**: The government sanctioned the LCH project in October 2006, and HAL was tasked to develop it.
- The **HAL's Rotary Wing Research and Development Centre**, which had already worked on the **Advanced Light Helicopter (ALH) Dhruva** and its **weaponized version ALH Rudra**, embarked upon the project.

## Features

- **Dual engine** – LCH is powered by **two French-origin Shakti engines** manufactured by the HAL.
- **Tandem cockpit** – The configuration of cockpit is such that co-pilot will sit behind the pilot, making the cockpit sleeker.
- LCH has the maximum take-off weight of **5.8 tonnes**, maximum **speed of 268 kilometers** per hour, **range of 550 kilometers**, endurance of over **three hours** and service ceiling — **the maximum density altitude** to which it can fly — of **6.5 kilometres**.
- The helicopter uses **radar-absorbing material** to lower radar signature.
- A **pressurised cabin** offers protection from nuclear, biological and chemical (NBC) contingencies.
- As far as weapons systems are concerned, a 20 mm turret **gun**, 70 mm **rockets** and **air-to-air missile systems** are onboard.



According to HAL there is a projected requirement of **160 LCHs** — **65 for IAF and 95 for Indian Army**, which is expected to be completed in **8 years**.

# Medicine Nobel prize 2022

Relevance: Prelims & Mains Paper III; S&T

## Paleogenomics

- The word '**Paleogenomics**' is made up of two words – 'Paleo' and 'genomics'. 'Paleo' meaning ancient or past. Genomics refers to study of genes.
- **Svante Pääbo** has been awarded Nobel prize in the field of medicine for the year 2022.
- Svante Pääbo is credited to have established an entirely new scientific discipline, called paleogenomics, that focuses on studying the DNA and genetic information of extinct hominins through reconstruction.
- **Hominins** refer to the **now-extinct species of apes** that are **believed to be related to modern humans**.

## Specific contributions

- 1. **Sequencing the genome of the Neanderthal**, an extinct relative of present-day humans.
- 2. He is also **credited to have linked the genetic information of extinct species with human evolution**.
- 3. He also made **discovery of a previously unknown hominin, Denisova**.



## Denisova

- Pääbo discovered a previously unknown hominin, which was then **given the name Denisova**.
- Pääbo extracted **DNA from bone specimens** from extinct hominins, from Neanderthal remains in the **Denisova caves of Germany**. The bone contained exceptionally well-preserved DNA, which his team sequenced.
- It was found that this **DNA sequence was unique** when compared to all known sequences from Neanderthals and present-day humans.

## Gene flow

- Comparisons with sequences from contemporary humans from different parts of the world showed that **gene flow, or mixing of genetic information among a species**, had also occurred between Denisova and Homo sapiens – the species of modern-day humans.
- This relationship was first seen in populations in Melanesia (near Australia) and other parts of South East Asia, where individuals carry up to 6% Denisova DNA.
- The **Denisovan version of the gene EPAS1** confers an advantage for **survival at high altitudes and is common among present-day Tibetans**.

# 2022 Nobel Prize in Physics

Relevance: Prelims & Mains Paper III; S&T

## Winners

- The Nobel Prize for Physics 2022 is being shared by three scientists, Alain Aspect (from France), John F Clauser (from USA) and Anton Zeilinger (from Austria), for their work on quantum mechanics.

## Contribution

- The scientists have made contribution in the field of quantum mechanics.
- Specifically, they conducted a series of experiments on something called **entangled quantum states**, where two separate particles behave like a single unit.
- Their pathbreaking results will have implications in the fields of quantum computers and secure quantum encrypted communication.

# Indigenous Light Combat Helicopter 'Prachand' inducted

Relevance: Prelims & Mains Paper III; Science & Technology

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# “Plant-based” animal products

**Relevance: Prelims & Mains Paper III; Science & Technology**

## Meaning

- “Plant-based” products refers to products that **bio-mimic or replicate meat, seafood, eggs, and milk derived from animals** — **by looking, smelling, and tasting like them**. These Plant based meat products are often **named after their non-neg counterparts**.
- **Plant-based dairy products** include food products made ingredients sources from plant sources. For instance, **plant based ice-cream replaces milk fat with vegetable oil**. Even the **proteins and other solids-not-fat ingredients are sourced from plants**.
- **Plant based animal products are getting popular**. For instance, many start-ups have forayed into the production and marketing of plant-based meat.

## Making of Plant Based Meat

- **The challenge lies in replicating muscle tissue that plants don't have**. The unique spatial arrangement of proteins in these tissues is what creates the distinct texture of animal meat.
- **That's why plant-based mutton samosas, kebabs or keema, having a simpler texture, are easier to make** than larger whole cuts of animal meat such as chicken breasts and pork chops.

## Plant based dairy products

- As for **plant-based dairy**, the **main products** are milk from **oats, almond, soyabean, coconut, and rice**.
- Among these, **oat milk** is **considered the closest to regular milk in taste and texture**. It is also **thicker and creamier, as oats absorb more water than nuts or rice** during soaking.

## Challenges

1. **Nutrition** - Both milk (which includes ghee, curd, butter, ice-cream and other dairy products) and, to a lesser extent, meat (which includes fish and prawn) are superior foods in term of nutrition.
2. **Taste** – Past based animal products seek to replicate the taste and smell of animal based products, and are usually less tastier than the original ones.
3. **Affordability** – The bio-mimic products are even costlier than the animal based products.
4. **Digestive concerns** - Some say that the market for plant-based milk in the West “has been driven by lactose intolerance, real or imagined”. Those digestive concerns aren’t very serious in India

# Agni Prime

**Relevance: Prelims; S&T**

**1. Agni:** The Agni missile is a family of surface-to-surface medium to intercontinental range ballistic missiles developed by India. Various versions of Agni missile are mentioned below:

Name	Type	Range
Agni-I	MRBM	700-800 km (Operational)
Agni-II	MRBM	2,000–3,000 km (Operational)
Agni-III	MRBM	3,000–4,000 km (Operational)
Agni-IV	MRBM	3,500–5,000 km (About to be operational)
Agni-V	ICBM	5,000–6,000 km (Under testing)

**Note:** SRBM stands for Short Range Ballistic Missile, MRBM stands for Medium Range Ballistic Missile, and ICBM stands for Intercontinental Ballistic Missile.

- India recently successfully test-fired indigenously-developed new generation medium-range ballistic missile Agni Prime.



## Agni-P

Agni-P (Prime) is a new generation nuclear-capable ballistic missile. It is an advanced variant of the Agni class of missiles. It has been successfully test-fired by the Defence Research and Development Organisation (DRDO). It can be launched from a canister and ranged between 1,000 and 2,000 km.

It is to be noted that a missile is tested numerous times before it is operational, i.e., put under the command of armed forces.

# ISRO's heaviest rocket so far

Relevance: Prelims & Mains, GS Paper III- Science & Technology

## Why in news?

- The Indian Space Research Organisation (ISRO) crossed an important milestone with the successful launch of the **LVM3 M2/OneWeb India-1 mission** recently.
- The LVM3 rocket carried **almost 6 tonnes of payload** into lower-earth orbit, the most that any ISRO mission has delivered into space till date.
- It was **called GSLV Mk-III earlier**.

## Significance

- LVM3 rocket is ISRO's **most advanced** launch vehicle.
- The success of the flight re-validated the viability of the LVM3 rocket for keenly-awaited missions like the **manned missions, Moon landings and deep space explorations**.
- It also affirmed the agency's claim as a serious player in the **heavy satellite launch market**.
- **Very few countries** have the capability to launch satellites weighing **more than 2 tonnes**.
- Until recently, even **ISRO used to take the services of Ariane rockets of Europe** to launch its heavy satellites.
- The LVM3 rocket is **meant to end that dependence**.



## Currently operational launch vehicles

- India currently has **three operational launch vehicles** — the Polar Satellite Launch Vehicle or **PSLV**, of which there are multiple versions; the Geosynchronous Satellite Launch Vehicle or **GSLV Mk-II**; and the **Launch Vehicle Mark-3** or **LVM3**.
- The **PSLV** has been the most commonly used, having carried as many as **53 successful missions since 1993**. Only two flights of PSLV have failed.
- The **GSLV-MkII** rocket has been used in **14 missions**, of which **four have ended in failures**.
- The **LVM3** has flown five times, including the **Chandrayaan 2 mission**, and has never disappointed.
- In addition, ISRO has been **working on a reusable launch vehicle (RLV)**. Unlike other rockets, the RLV would not end up in space as waste. Instead, it can be brought back and refurbished for use multiple times.

### HEAVYLIFTERS



#### LVM3

INDIA'S HEAVIEST,  
WILL ALSO BE USED  
FOR GAGANYAAN

**Liftoff Mass: 640**

**Payload Capacity:**

LEO: 8

GTO: 4



#### PSLV

INDIA'S MOST  
PROLIFIC

**Liftoff Mass: 320\***

**Payload Capacity:**

LEO: 1.75

GTO: 1.4



#### GSLV MK-II

MEANT FOR  
HEAVIER  
COMMUNICATION  
SATELLITES

**Liftoff Mass: 415**

**Payload Capacity:**

LEO: 6

GTO: 2.25

## Lift off Mass

- Compared to vehicles that ply on land, or even on water, rockets are an extremely inefficient medium of transport. The **passenger (or payload) comprises barely 2 to 4 per cent of the weight of the rocket.**
- **Between 80 and 90 per cent** of the launch-time weight of any space mission is the **fuel, or the propellant.** This is because of the unique nature of a space journey, which involves **overcoming the tremendous force of gravity.**
- The **LMV3 rocket** has a lift-off mass of **640 tonnes**, and all it can carry to **lower earth orbits (LEO) — about 200 km from the Earth's surface —** is a mere **8 tonnes**. To the **geostationary transfer orbits (GTO)**— up to about **35,000 km** from Earth — it can carry much less, only about **4 tonnes**.



**ARIANE 5**  
EUROPE'S  
HEAVIEST  
**Liftoff Mass: 780**  
**Payload Capacity:**  
LEO: 20  
GTO: 10



**LONG MARCH**  
CHINA'S  
HEAVIEST  
**Liftoff Mass: 850**  
**Payload Capacity:**  
LEO: —  
GTO: 14



**FALCON HEAVY**  
SPACEX, MOST  
POWERFUL FOR  
COMMERCIAL  
USES  
**Liftoff Mass: 1,420**  
**Payload Capacity:**  
LEO: 64  
GTO: 27

*\*Standard; Liftoff mass & payload capacity in tonnes*



**SPACE LAUNCH VEHICLE**  
NASA'S LATEST,  
MEANT FOR  
DEEP SPACE  
EXPLORATION  
**Liftoff Mass: 3,000**  
**Payload Capacity:**  
LEO: —  
GTO: 27  
(to moon and beyond)

## Space launch constraints

- Most of a rocket's energy is burnt in travelling to the lower earth orbit. This is because the force of gravity is the strongest here. The journey farther into space is much more smooth, and requires far less energy.
- It is for this reason that it is often said that the giant leap for mankind was not setting foot on the Moon, but in reaching the LEO.
- If a space mission is headed towards the Moon or Mars or any other celestial body, the gravity of the destination also enters the equation. More energy would be expended in reaching such a destination, compared to simply attaining a space orbit to deposit a satellite.

## Need for future space missions

- With dreams of setting up a permanent station on the Moon, and taking human beings to Mars and beyond, rockets would need to carry more and more stuff to space. But the capacity of rockets is severely limited.
- There are two kinds of engineering innovations that can be employed to fulfill the objectives of future missions:
  1. The rockets can make multiple trips, carrying components of larger structures that can be assembled in space. This is how the International Space Station and other similar facilities were built.
  2. The other is the possibility of the use of resources available in situ on the Moon and Mars. In fact, all future missions to the Moon are attuned to exploring this possibility.

# Satellite phones & restrictions on them in India



Relevance: Prelims & Mains, GS Paper III; Science & Technology

## Why in news?

- A senior executive of Saudi Arabian oil company Saudi Aramco spent several days in prison in Chamoli district of Uttarakhand after he was arrested by police in July with an unauthorised satellite phone.

## Satellite phone

- Satellite connectivity relies on satellites — rather than cell phone towers, which provide connectivity to regular cell phones.
- Satellite phones work in remote areas where there are no cell phone towers and therefore, no cellular connectivity. Satellite (or sat) phones usually cover most of the planet with fairly robust connectivity.
- They can be used only after required permissions and as per law.

## Use of Satellite phone

- Satellite phone are used for the duration of their stay in a remote location.
- These phones are much more expensive than regular cell phones. The device may cost around \$1,000 or more, and monthly/yearly plans can cost hundreds of dollars each year.
- The talk-time with these plans is limited, so using the phone for longer means shelling out more.
- People and companies who need these phones often choose to rent them.
- There are a few well known satellite connectivity providers.

## Restrictions

- It's **not legal to carry one in India unless you have permission.**
- Visitors to the country are specifically advised not to carry a satellite phone without permission as per **Indian Wireless Telegraphy Act, 1933.**
- Restrictions on the possession and use of these phones were **tightened after the Pakistani terrorists who attacked Mumbai in November 2008 used these devices** to keep in touch with their Lashkar-e-Taiba handlers.



# Five new varieties of India's Basmati

Relevance: Prelims; Science & Technology

## Why in news?

- Five new Basmati varieties recently developed by Indian Agriculture Research Institute (IARI) are all set to bring revolutionary changes in the way this type of paddy is cultivated in the country.
- Three of the five varieties can resist two common diseases of paddy.
- The other two can save 35% of the water now required as the seeds can be directly sown, obviating the need for transplanting seedlings. These two seeds are resistant to herbicides too.

## Exports of Basmati

- Seven States/UTs in India— Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Delhi, Uttar Pradesh and Uttarakhand — are earmarked for Basmati Geographical Indication.
- Basmati, known for its mouthfeel, aroma, length of the grain when cooked and taste, has a market abroad and brings about ₹30,000 crore in foreign exchange every year.
- While 75% of the export is to West Asian countries, European Union countries also import Indian Basmati.

## High Pesticide residue

- Recently, the **export to EU** countries faced certain hurdles due to the increase in the pesticide **residue levels** in the rice from India.
- As the area of cultivation increased, **traditional varieties** become **susceptible to two major diseases** — **bacterial leaf blight (BLB) and blast (leaf and collar) diseases** caused by the fungus **Magnaporthe oryzae**.
- **Pesticides and fungicides used** against these diseases **increased the residue levels** permitted in developed countries.

## Role of new varieties

- **Achieving the permitted levels** was very **difficult while using pesticides** for controlling pests.
- The **only way** was to bring in **genetic resistance** so that the spray of pesticides and fungicides could be reduced.
- So, from Pusa Basmati 1121, scientists developed **Pusa Basmati 1885**; from Pusa Basmati 1509, they developed **Pusa Basmati 1847**; Pusa Basmati 1401 was improved to develop **Pusa Basmati 1886**. All these three varieties have **two genes to resist BLB and two genes to resist blast disease**.
- Farmers **need not use pesticides** and it will **decrease the cost of farming by ₹3,000 an acre**. Because of effective disease control, **production will increase** and most important, there is **no question of pesticide residue** in these varieties.

## Role of water saving varieties

- The **two newly developed varieties need direct sowing**. In other words, these varieties require the practice of cultivating **transplanted variety of paddy to direct sowing of rice (DSR)**.
- Around **3,000 litres of water** is required for **one kilogram** of Basmati rice. This has impacted the **water table of States such as Punjab and Haryana**.
- **Water saving is 35% in DSR** and the requirement will be **2,000 litres for a kilogram of rice**.
- The **second advantage** is that the **green house gas emission is reduced by 35%** as **water is not stagnating** in this process.
- **Labour cost of transplantation**, which is about **₹3,000**, is also saved.
- However, one of the **major problem** in the DSR is **weeds**. **Without the water acting as a herbicide**, the **DSR method** allows for a **lot of weeds** to crop up in the field.
- So, scientists transferred a **gene that is resistant to a herbicide**. So, when farmers spray herbicide, **weeds will be killed, not paddy**.



# First inhalable vaccine against Covid-19

## Relevance: Prelims; S&T

### Why in news?

- China has started administering an **inhalable vaccine** against Covid-19, apparently a world first such vaccine.
- The vaccine is being **offered for free as a booster dose** for previously vaccinated people.

### Experience of vaccine

- The vaccine **is like mist and tastes sweet that is sucked in through the mouth**. A video posted by an online Chinese state media outlet showed people at a community health centre sticking the short nozzle of a translucent white cup into their mouths.
- The accompanying text said that after slowly inhaling, people **hold their breath for five seconds**, with the entire procedure completed in 20 seconds.
- The inhalable vaccine has been **developed by the Chinese biopharmaceutical company CanSino Biologics Inc.** as an **aerosol version** of its one-shot adenovirus vaccine, which **uses a relatively harmless cold virus**.

## Other needle-less syringes

**1. Intranasal vaccine** - In September this year, India's national drug regulator cleared Hyderabad-based Bharat Biotech's iNCOVACC, the country's first intranasal Covid-19 vaccine for emergency use in unimmunised adults.

iNCOVACC, which uses a modified chimpanzee adenovirus, will be delivered through the nasal route, which would potentially trigger an immune response in the mucosal membrane.

It has been designed to not only protect against infection but also reduce transmission of the virus.

**2. Intradermal vaccine** - Zydus Cadila's ZyCoV-D, the first Covid-19 vaccine built on a DNA platform, is an intradermal vaccine that is applied through the skin, but using a needle-free system.

## Easy to deliver

- Any needle-free vaccine is easy to administer, and cut down on the dependence on trained personnel, ultimately making mass immunisation more accessible in poorer countries and countries with inadequate healthcare infrastructure.
- Also, experts have pointed out that needle-free shots might persuade those who do not like to be injected to get the vaccine.

## Questions remain



While around a dozen nasal vaccines are being tested globally according to the World Health Organization, the **effectiveness of non-needle vaccines is yet to be fully tested.**

**Save for some flu vaccines, this route of delivery has not been very successful so far.**

**Also, only very small volumes of the vaccine can be squirted into each nostril, and the same would be true for inhalable formulations as well.**

# Hybrid mustard

**Relevance: Prelims & Mains Paper III; S&T**

## Why in news?

- Recently, the **Genetic Engineering Appraisal Committee (GEAC)** recommended the “**environmental release**” of the transgenic hybrid mustard DMH-11 for seed production and conduct of field demonstration studies.

## Hybrid Mustard

- Hybridisation involves **crossing two genetically dissimilar or same plant species**.
- It is **difficult to develop a hybrid of mustard**. In other words, it is difficult to cross pollinate a mustard crop.
- Why? The **flowers of mustard have both female (pistil) and male (stamen) reproductive organs**, making the plants largely self-pollinating. Since the **eggs of one plant cannot be fertilised by the pollen grains from another**, it limits the scope for developing hybrids.
- In **2016**, researchers of the Delhi University have genetically modified an Indian mustard such as ‘Varuna’; and an East-European mustard varieties such as ‘Heera’ and ‘Donskaja’ to cross pollinate them.
- After cross-pollinating these genetically modified mustard varieties, the **new variety of mustard developed was named Dhara mustard hybrid (DMH-11)**.

## Expected benefits of Hybrid Mustard

1. DMH-11 yields 28% more than the traditional reference mustard variety.
2. It will help in boosting edible mustard oil production; thus, reducing the huge import bills for edible oil.
3. GM mustard is resistant to herbicides.

## Permissions given by GEAC

- GEAC is a body responsible for appraisal of proposals relating to the “release” of GM organisms and products (ordinarily considered hazardous) into the environment.
- It works under the Union Ministry of Environment, Forest and Climate Change.
- Permissions given by GEAC:
  1. GEAC has given the green signal for commercial cultivation by farmers, with production of seed material being the first step.
  2. GEAC has also recommended the environmental release of DMH-11’s parental lines, Indian and East-European, for developing new hybrids.

## Concerns



- There has been **opposition to GM crops in general**. In GM mustard, there have been **two specific concerns** voiced as well.

1. The first is the presence of a **third 'bar' gene**, which makes **GM mustard plants tolerant to the spraying of glufosinate ammonium, a chemical used for killing weeds**. The opponents allege this will cause **displacement of manual labour engaged in weeding** by promoting use of chemical herbicides.

The DMH-11 developers, however, say that **bar is only a marker gene**. It is used to identify those plants that have been genetically modified — the **non-GM ones cannot withstand application of the herbicide** — and necessary for large-scale seed production.

2. The second concern is over GM mustard threatening or **undermining the population of honey bees**. Mustard flowers are a **source of nectar for honey bees and many other pollinator insects**.

However, the GEAC has said that based on the available evidence it **seems unlikely** that the Hybrid Mustard will pose an adverse impact on honey bees and other pollinators.

# C295 aircraft

Relevance: Prelims & GS Mains III; S&T



## Why in news?

- Prime Minister Narendra Modi recently laid the foundation stone of a **C295 aircraft manufacturing plant in Vadodara, Gujarat.**
- **Tata-Airbus consortium** will manufacture the **transport aircraft for the Indian Air Force (IAF).**
- It is the **first project** of its kind in which a **military aircraft will be manufactured in India by a private company.**
- It is also the **first time** that the **C295 aircraft will be manufactured outside of Europe.**
- The manufacturing unit will **cater to the export** of the transport aircraft and for **additional orders by the IAF.**

## Production of C295

- The C295 was **originally produced by a Spanish aircraft manufacturer named Construcciones Aeronauticas SA.**
- This company is **now part of Airbus** and the aircraft's **manufacturing takes place at Airbus's plant in Spain.**
- In **September 2021**, India signed a **Rs 21,935 crore deal with Airbus Defence and Space** to procure **56 C295 aircraft** to **replace** the IAF's ageing **Avro-748 planes**, which entered service in the early 1960s.
- Under the agreement, Airbus will deliver the first **16 aircraft in 'fly-away' condition** from its final assembly line in Seville, Spain within four years, and the **subsequent 40 aircraft** will be **manufactured by Tata Advanced Systems Ltd (TASL)** in India as part of an industrial partnership between the two companies.

## Technical specifications

- The C295MW is a **transport aircraft** with **5 to 10-tonne capacity** and a maximum speed of **480 kmph**.
- It has a **rear ramp door for quick reaction and para-dropping of troops and cargo**.
- **Short take-off and landing from semi-prepared surfaces** are some other features.
- The company claims this aircraft has the **longest unobstructed cabin in its class** which can accommodate **71 seats**.
- The company also claims that C295 can **carry more cargo than its competitors**.

## Uses of C295

- C295 can **carry troops and logistical supplies** from **main airfields to forward operating airfields** of the country.
- It can also **operate on short unprepared airstrips** as it is capable of **Short Take-off and Landing (STOL)**.
- The aircraft can additionally be used for **casualty or medical evacuation**, performing **special missions**, **disaster response** and **maritime patrol duties**.



# SOCIAL ISSUES

# Understanding genders

**Relevance: Prelims & Mains Paper I; Social issues**

## Sex and gender

- While a person's **sex** is primarily based on **external, visible markers**, **gender** is based on the **internal understanding** one has of themselves.
- **Gender is solely about how you identify yourself, independent of your physical body.**
- **Understanding gender as a spectrum** - Although this is slowly starting to change, most people are taught that there are only two genders: man and woman.
- But there are **way more than two genders!**

## Cisgender

- **Cisgender** – A person is cisgender if **the sex they're assigned at birth aligns with their gender.**
- Someone is cisgender if they were assigned male at birth (AMAB) and now identify as a man, or if they were assigned female at birth (AFAB) and now identify as a woman.
- **Can gender change over time?**
- Absolutely! One's gender can change over time. Sometimes this is because the gender itself has evolved, and sometimes this is because one actually learns what more accurately describes one's lived experience.

## Cisgender and transgender

- The prefix 'cis' means on the same side. So, someone who is cisgender has a gender that is on the same side as the sex they were assigned at birth.
- The prefix 'trans' means on the other side. So, someone who is transgender has a gender that is on a different side from the sex they were assigned at birth.
- Typically, cisgender and transgender are considered binary categories. There's often an assumption that someone must be either one or the other. But not all people feel affirmed by either term.

## Non-binary

- A nonbinary person is someone whose gender doesn't fit within the binary of 'man' and 'woman.'
- Some nonbinary people see their gender as existing between the two binary genders, while other nonbinary people see their gender as existing totally outside of the binary genders.
- Most people who are nonbinary, however, do not identify with the term "cisgender." But that doesn't necessarily mean nonbinary people are transgender.

## Cisgender and agender

- An agender person has no gender. Some agender people feel affirmed by other labels like transgender or nonbinary, and some do not.
- Someone who is agender doesn't identify with being a man or woman. Someone who is agender also isn't nonbinary or any other gender.

## Cisgender and straight

- Cisgender is word that describes gender. Straight is a word that describes sexual orientation.
- Said differently: Cisgender names who you are, while straight names who you might be attracted to.

# Resignation by Aam Aadmi Minister Rajendra Pal Gautam

Relevance: Prelims & Mains Paper I; Social Issues



Dr. B.R. Ambedkar	Renounce Hinduism	Adopted Buddhism
<ul style="list-style-type: none"><li>- Dr. B.R. Ambedkar was a great social reformer who fought against case based inequality.</li><li>- He, along with his followers, renounced Hinduism and adopted Buddhism.</li></ul>	<ul style="list-style-type: none"><li>- On October 13, 1935, Ambedkar, as president of the 'Yeola Conversion Conference' near Nasik, announced his decision to renounce Hinduism, as a path to contest the Hindu caste order.</li><li>- However, the decision to adopt Buddhism was not announced then.</li></ul>	<ul style="list-style-type: none"><li>- He reached the conclusion after a detailed contemplation on various religions that Buddhism is an appropriate choice due to following reasons:<ol style="list-style-type: none"><li>1. It had challenged the Brahmanical caste-based social hierarchies in the past;</li><li>2. It focused on modern ethical values and a scientific temperament and</li><li>3. It preached peace and compassion for social coexistence.</li></ol></li><li>- On October 14, 1956, B. R. Ambedkar along with more than half a million followers embraced Buddhism in Nagpur, Maharashtra.</li></ul>

Event	Navayana Buddhism	Buddhism in India
<ul style="list-style-type: none"> <li>- Ambedkar embraced Buddhism in a grand ceremony at Nagpur's Deekshabhoomi.</li> <li>- He pronounced the self-crafted 22 vows for the assembled people and renounced Hinduism.</li> <li>- The event is marked as the renaissance of Buddhism in India.</li> </ul>	<ul style="list-style-type: none"> <li>- In the post-event deliberation, Ambedkar called his version of Buddhism Navayana (followers are called neo-Buddhists), differentiating it with the Mahayana and Vajrayana traditions of Buddhism.</li> <li>- Every year in October, lakhs of people assemble at Nagpur's Deekshabhoomi to pay homage to Ambedkar and to celebrate the historic day.</li> </ul>	<ul style="list-style-type: none"> <li>- The Buddhist population is a mere 0.70%, of which 87% are neo-Buddhists.</li> <li>- Further, a large majority of it (around 80%) reside in Maharashtra (5.8% of the total population).</li> <li>- The rest are traditional Buddhists and are scattered mainly in north-eastern States like Sikkim, Arunachal Pradesh, Mizoram and Tripura, etc.</li> <li>- There has been a decline in the growth rate of Buddhists in India in recent years.</li> </ul>

## Recent controversy

- On October 5, Mission Jai Bhim and The Buddhist Society of India organised a public meeting in Delhi to commemorate Buddhist Conversion Day.
- Every year Dussehra is also celebrated as Ashoka Vijaya Dashami to commemorate Buddhist Conversion day.
- This year, a Minister in the Aam Aadmi government in Delhi, Rajendra Pal Gautam, participated in the event in his personal capacity. Along with the thousands of people assembled, he recited the 22 vows, which is part of the ritual.

## BJP opposition

- The Bharatiya Janata Party (BJP) objected to Mr. Gautam's presence at the event and his recitation of the vows.
- He was accused of spreading anti-Hindu sentiments. The BJP sought the resignation of Chief Minister Arvind Kejriwal and following the uproar, Mr. Gautam resigned on October 9.

# Mahakal temple in Ujjain

Relevance: Prelims & Mains Paper I; Social Issues

## Why in news?

- Prime Minister Narendra Modi inaugurated the first phase of the 'Shri Mahakal Lok' corridor in Madhya Pradesh's Ujjain.
- After Vishwanath temple in Varanasi and the Kedarnath shrine in Uttarakhand, Mahakal temple is the third 'jyotirlinga' site to see a major upliftment exercise.
- The Rs 800-crore Mahakal corridor is four times the size of the Kashi Vishwanath corridor, which the PM had inaugurated late last year.

## Mahakal temple

- Puranas say that Lord Shiva pierced the world as an endless pillar of light, called the jyotirlinga.
- There are 12 jyotirlinga sites in India, considered a manifestation of Shiva.
- Besides Mahakal, these include Somnath and Nageshwar in Gujarat, Mallikarjuna in Andhra Pradesh, Omkareshwar in Madhya Pradesh, Kedarnath in Uttarakhand, Bhimashankar, Triyambakeshwar and Grishneshwar in Maharashtra, Viswanath at Varanasi, Baidyanath in Jharkhand, and Rameshwar in Tamil Nadu.
- Mahakal is the only jyotirlinga facing the south, while all the other jyotirlingas face east. This is because the direction of death is believed to be the south. In fact, people worship Mahakaleshwar to prevent an untimely death.



# Equal pay for men and women cricketers

## Relevance: Prelims & Mains; Social Issues

Why in news?	Decision Implication	Retainership payment
<ul style="list-style-type: none"><li>- In a landmark move, the <b>Board of Control for Cricket in India (BCCI)</b> recently announced that it will be implementing a new pay equity policy for its contracted women cricketers, effectively paying men and women cricketers the same match fees.</li></ul>	<ul style="list-style-type: none"><li>- The women cricketers will be <b>paid the same match fee as the men</b>: Test matches at Rs 15 lakhs, ODI matches at Rs 6 lakhs and T20I at Rs 3 lakhs.</li><li>- Until now, while this was the match fee for each Test, ODI and T20 for the men, Indian women's cricketers <b>earned Rs 4 lakhs for test matches, and Rs 1 lakh for T20s and ODIs.</b></li></ul>	<ul style="list-style-type: none"><li>- In cricket, apart from the match-wise fees, there is a <b>retainership payment system.</b></li><li>- For women cricketers, Rs 50 lakh for Grade A cricketers, Rs 30 lakh for Grade B and Rs 10 lakh for Grade C cricketers are paid annually apart from the match fees.</li><li>- Men cricketers, who play a higher number of games, are paid between Rs 7 crore and Rs 1 crore depending on their grade, starting with an A Plus grade. There will be no change in this, as of now.</li></ul>

## Cricket in other country

- The **first country** to bring pay parity was **New Zealand** in July 2022.
- **Australia** has also recently **begun** ambitious plans to popularise cricket in the country this year, with a focus on bringing women's cricket on par with men's cricket.

## Other initiatives

- The Committee of Administrators that runs the affairs of the **Table Tennis Federation of India**, said in May 2022 that it would offer **equal prize money for men and women in all the national zonal tournaments** – including national championships across age groups.
- In another significant step, the **US Soccer Associations for men and women negotiated agreements for equal pay** this year as well.

## Why differences?

- Men get a higher fee due to a variety of reasons – they play **more games per season**, and they **get more advertisements and corporate sponsorship** based on the size of their audiences.
- However, it has been argued that a basic equal fee could **motivate more women to join and view sports**, and **eventually command a similar following** as the men's matches.

# INTERNAL SECURITY

# Morbi bridge collapse

**Relevance: Prelims & Mains Paper III; Internal Security**

## Why in news?

- The **suspension bridge collapsed in Gujarat's Morbi** on 30th October killing at least 134 people.
- The town of Morbi is **situated on the Machchhu River, 35 km from the sea and 60 km from Rajkot**. It is the administrative headquarters of Morbi district.
- Machchhu is a **small river that rises in the Madla Hills and flows 130 km into the Rann of Kutch**.

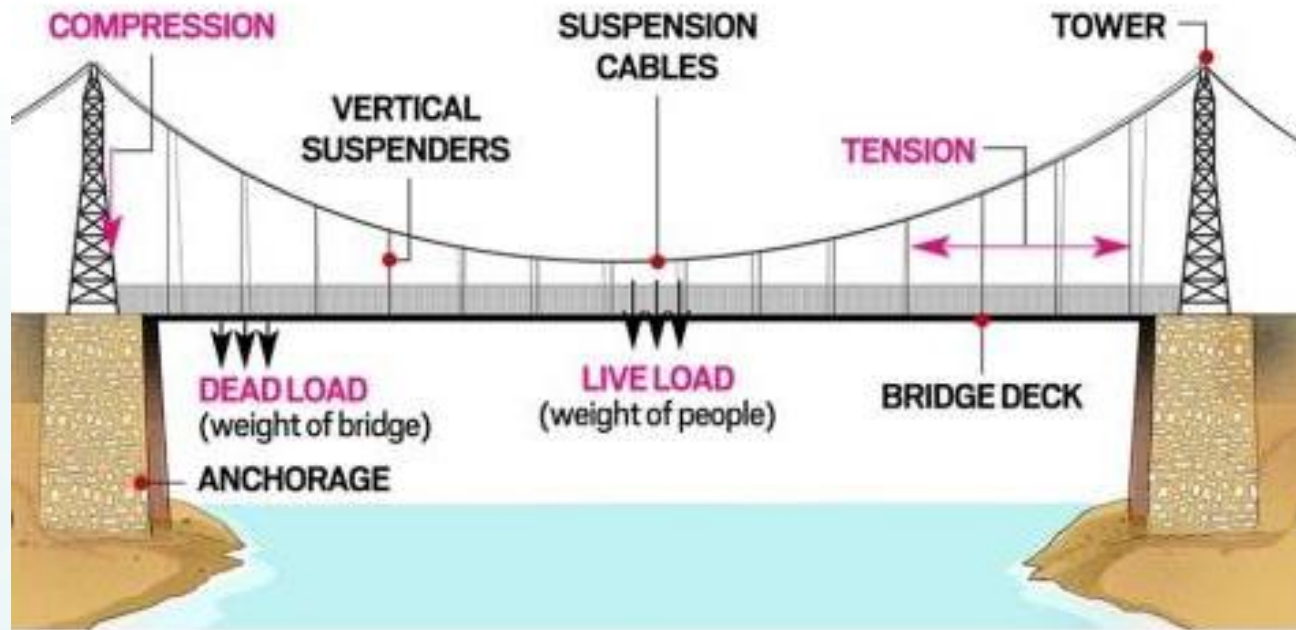
## Suspension bridge

- A suspension bridge is a type of bridge in which the deck is hung below suspension cables on vertical suspenders.
- The basic structural components of a suspension bridge system include stiffening girders, two or more main suspension cables, and towers and anchorages for cables at either end of the bridge.
- The main cables are suspended between the towers and are connected to the anchorage or the bridge itself. The vertical suspenders carry the weight of the deck and the commuter load on it.
- The design ensures that the load on the suspension cables is transferred to the towers at the two ends, which transfer them further by vertical compression to the ground by way of the anchorage cables.



# FORCES AT PLAY

Suspension bridges depend on the balance of the forces of compression and tension



## The 'Jhulto Pul' on the river

- The suspension bridge, "Jhulto Pul", was a pedestrian suspension bridge that was inaugurated in 1879.
- The official website of Morbi district says the bridge spanned 233 metres, and was 1.25 metres wide.
- The bridge was a tourist attraction.
- The suspension bridge had been closed for renovation two years ago, and was reopened to the public only on October 26, allegedly without carrying out a safety audit first.

## Caution was required

- All of this balancing has to happen within the permissible weight restrictions for the bridge, given that the deck is hanging in air, supported by the two sets of cables.
- Given that the most important load bearing members are the main suspension cables, the entire cross-section of the main cable is the mainstay of carrying the load and ensuring that buckling does not happen.
- But this is subject to two preconditions: there must be no **overloading**, and **no excessive swaying**.

## Bridge collapse

- Even as an investigation into the accident is pending, the visuals and purported footage prior to the incident seem to suggest that **both these preconditions were possibility tested**.
- The bridge had **over 400 people** on it when it collapsed. And while the weight limit is not known, purported video footage from before the incident seems to suggest the **bridge was swaying**, possibly because of the large crowd on it.
- Visuals from the site appear to suggest that the two towers were unaffected. The twin suspension cables arising from the towers, which ran along the length of the bridge and were connected to the vertical cables holding up the road deck, also seem to be in place.
- What seems to have given way are the **connections securing the vertical cables with the deck, especially on one end of the bridge**.

## Role of vertical support

- The job of the vertical cables in a suspension bridge is to transfer the weight of the deck, by tension, to the twin suspension cables that run horizontally between the two anchorages on either end, which, in turn, transfer the tension to the towers and, through them, to the ground by way of cables whose ends are anchored.
- In Morbi, the **vertical cables seem to have snapped entirely from the deck at one end of the bridge**, sending part of the unsuspended deck and those on it plunging into the river.

# MISCELLANEOUS



# Black Cocaine

## Relevance: Prelims

### Why in news?

- The **Narcotics Control Bureau (NCB)** arrested a Bolivian woman from Mumbai airport for allegedly carrying black cocaine.
- A thorough search of her luggage led to the **discovery of false cavities wherein 12 tightly packed packets** were recovered. Upon checking the packets, a black-coloured substance was found.

### What is Black Cocaine?

- “Black cocaine”, a rare drug, is a **mixture of regular cocaine and other chemicals** of administrated quantity.
- Black cocaine is a mixture of **regular cocaine base with various substances to camouflage typical appearance** (e.g. charcoal), to **interfere with colour-based drug tests** (cobalt salts form deep red complexes in solution), to make **the mixture undetectable by drug-sniffing dogs** as activated carbon may sufficiently absorb trace odours.
- The pure cocaine base is then **recovered from the mixture by extraction using common organic solvents** such as methylene chloride or acetone. A **second process is required to convert the cocaine base into powdered cocaine hydrochloride.**



# Black Cocaine

## Relevance: Prelims

### Origin

- As per reports, in the **mid-1980s**, **Chilean dictator Augusto Pinochet** ordered his army to **build a clandestine cocaine laboratory** in Chile to make black cocaine which could not be detected by law enforcement agencies.

### Difficult to detect

- In 2008, black cocaine was discovered by police in Spain which had been manufactured into rubber-like sheets and made into luggage.
- In 2021, a major consignment of black cocaine – 860 kgs – was seized in Spain.
- Officials say that this is a disturbing trend. While this time around they could nab the woman since they had a specific tip-off about her, in the absence of intelligence they may find it difficult to detect the contraband.

# Swachh Survekshan 2022 awards

## Relevance: Prelims

### Why in news?

- India celebrated **8 years of Swachh Bharat Mission**.
- The event coincides with the award ceremony, organized to recognize the good work done for Swachhata by towns/ cities, States and Union Territories under **Swachh Survekshan 2022** and **certifications for Garbage Free Star rating for cities**.

### Award Categories

- **Cleanest city – More than 1 lakh population** : **Indore**, the city of lakes and palaces, walked away with **the Cleanest City title for the sixth consecutive year**, in the 'more than 1 lakh population' category.
- **Cleanest city – Less than 1 lakh population** : In the population category of 'less than 1 lakh', Panchgani from Maharashtra bagged the first position.
- **Garbage free star ratings**: **Indore** further cemented its position by securing **India's first 7-star Garbage Free city certification**, while many other cities secured 5-star Garbage Free certifications.

## Award Categories

- **Cleanest State – more than 100 Urban Local Bodies :** **Madhya Pradesh emerged as the ‘Cleanest State’** in the category of “more than 100 Urban Local Bodies”.
- **Cleanest State – less than 100 Urban Local Bodies:** **Tripura** emerged as the Cleanest State award in the “less than 100 ULBs category”.
- **Miscellaneous**
- Tirupati received the best city award in **Safai Mitra Suraksha**
- Haridwar in Uttarakhand received the award for the **best Ganga town in more than one lakh population cities.**
- Shivamogga in Karnataka received the **fast mover city award.**

## Ranking cleanliness

The tables list the top six urban local bodies (ULBs) and the best performing States according to Swachh Survekshan, 2022. Indore retained the tag of India’s cleanest city for the sixth consecutive time, while Madhya Pradesh is ranked first among States

Ranking of urban local bodies (with more than 1 lakh population)

City	State	Rank
Indore	Madhya Pradesh	1
Surat	Gujarat	2
Navi Mumbai	Maharashtra	3
Visakhapatnam	Andhra Pradesh	4
Vijayawada	Andhra Pradesh	5
Bhopal	Madhya Pradesh	6

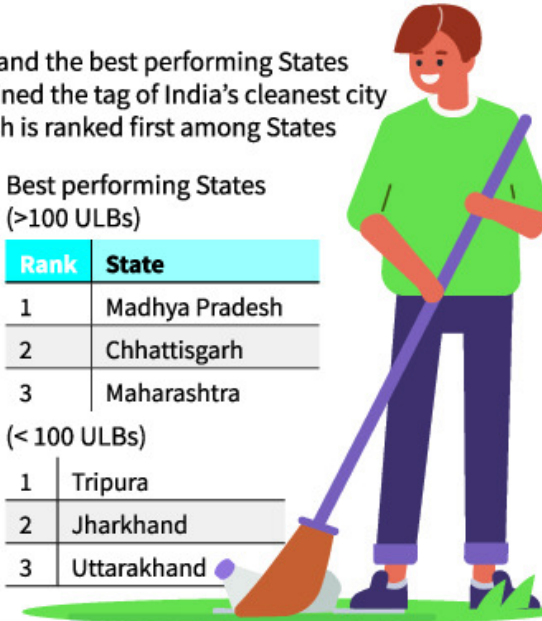
Source: Swachh Survekshan 2022

Best performing States (>100 ULBs)

Rank	State
1	Madhya Pradesh
2	Chhattisgarh
3	Maharashtra

(< 100 ULBs)

1	Tripura
2	Jharkhand
3	Uttarakhand



# YUVA 2.0

## Relevance: Prelims



### About the scheme

- The **Ministry of Education, Department of Higher Education**, launched YUVA 2.0 - **Prime Minister's Scheme for Mentoring Young Authors**.
- It is an **Author Mentorship programme to train young and budding authors (below 30 years of age)** in order to promote **reading, writing and book culture** in the country, and project India and Indian writings globally.
- It is **second edition** of the scheme.

### Details of the scheme

- Announcement of the Scheme 2 October 2022
- A total of 75 authors will be selected through an All India Contest
- The young authors will be trained by eminent authors/mentor
- Under the mentorship, the first set of published books will be launched on 2 October 2023

# Nobel Prizes

## Relevance: Prelims & Mains Paper III; Miscellaneous

### Origin

- Alfred Nobel was the **Swedish inventor and philanthropist** greatly known for the **invention of dynamite**. Nobel died in **1896**.
- He mentioned in his **will** that all of his remaining assets are to be used to establish **five prizes** which came to be known as “Nobel Prizes”.
- These five prizes are awarded for the contributions that have conferred the greatest benefit to humankind in the **fields of medicine, physics, chemistry, literature, and peace**.

### Awarded by

- Nobel Prizes are widely acclaimed as **the most prestigious awards** in their respective fields.
- As per Alfred Nobel’s will, the **Norwegian Nobel Committee awards the Nobel Peace Prize**. The Norwegian Nobel Committee comprises **five members appointed by the Storting** (Norwegian Parliament).
- The **other four Nobel prizes are awarded by Swedish bodies**. There is no explanation in the will of Alfred Nobel as to why the prize for peace was to be awarded by a Norwegian committee while the other four prizes were to be awarded by Swedish bodies.
- Norway and Sweden were in a **Union** at the time of death of Alfred Nobel.



## Awarded by

- After the death of Nobel, the Swedish bodies were designated to award the other Nobel prizes.
- **Royal Swedish Academy of Sciences** (non-governmental scientific organization) decides for Nobel Prizes in **Physics and Chemistry**;
- **Karolinska Institute**, also known as Royal Caroline Institute, (a **medical university**) decides for Nobel Prize in **Physiology or Medicine**; and
- The **Swedish Academy** (a **literary academy**) decides for Nobel Prize in **Literature**.

## 6<sup>th</sup> Nobel Prize

- Nobel Prizes were first awarded in **1901**.
- The prizes are awarded on an **annual** basis.
- In **1968**, a sixth prize was established in the field of Economics by **Sveriges Riksbank** (Sweden's central bank).
- This prize is not regarded as the Nobel Prize but "**The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel**".

## Awards

- Each recipient (known as a "**laureate**") receives a **gold medal, a diploma, and a monetary award**.
- In 2022, the Nobel Prize monetary award was **10,000,000 Swedish Kronor or US \$900,000**.
- Each prize may be **shared maximum among three people or organisations**.
- Nobel Prizes are awarded to **living persons only**. However, If a person is awarded a prize and **dies before receiving it**, the prize is presented.

# Credit Suisse crisis

## Relevance: Prelims



### About Credit Suisse

- Credit Suisse Group is **one of the oldest and historically most influential financial services company**, advising clients in aspects of finance (both investment and borrowing) across the globe.
- Credit Suisse has 50,000 employees and 1.6 trillion Swiss francs (\$1.62 trillion) in assets under management at the end of 2021.
- In recent years, Credit Suisse has made several **risky bets and ended up losing a lot of investor money**. That, in turn, has hurt its profitability, eroded investor confidence, and has made raising fresh capital costlier.

### Present status

- However, it has been losing its market value since 2008. Since the beginning of 2022, Credit Suisse's **share price has fallen** close to 60 per cent.
- At the same time, the **Credit Default Swaps have spiked** to a 14-year high — the highest since the global financial crisis of 2008.
- These two trends have led many, especially those on social media, to speculate if Credit Suisse is about to collapse, much like **Lehman Brothers**, an iconic American investment bank, did in 2008.



# Credit Suisse crisis

## Relevance: Prelims



### What are CDS?

- The worrisome issue for Credit Suisse Group is the rise in the spread of Credit Default Swaps.
- Essentially, a CDS is an **insurance instrument**.
- **If an investor who has lent money to a firm (say Credit Suisse) is unsure about the firm's ability to repay, the investor can buy a CDS on Credit Suisse's bond.**
- A **CDS promises** that if Credit Suisse fails to pay back, the **insurer would pay** the amount.
- In return, the insurance firm selling the CDS **gets a certain interest**.
- **This interest is called the spread of CDS. When these spreads rise, they signal the rising probability that a particular bond will fail.**
- For Credit Suisse bonds, CDS spreads have spiked to 14-year highs.

# Sugar production and consumption status

Relevance: Prelims



## Status

- India emerges as the world's largest producer and consumer of sugar and world's 2nd largest exporter of sugar.
- Brazil is the largest exporter of sugar.
- In Sugar Season (Oct-Sep) 2021-22, a record of more than 5000 Lakh Metric Tons (LMT) sugarcane was produced in the country.
- Out of 5000 Lakh Metric Tons, about 3574 LMT of sugarcane was crushed by sugar mills to produce about 394 LMT of sugar (Sucrose).
- Out of this, 35 LMT sugar was diverted to ethanol production and 359 LMT sugar was produced by sugar mills.

# Burkina Faso's latest coup

## Relevance: Prelims

### Coup in Burkina Faso

- **Captain Ibrahim Traore**, a 34 year old man, led latest coup in Burkina Faso.
- Burkina Faso is **former colony of France**.
- **Russia has expressed support** for the coup.
- **Neighbours and western nations have condemned the coup**.



# What is NOPEC?

## Relevance: Prelims

### OPEC+ Decision

- OPEC+ said that it would slash global crude oil production despite lobbying by the Biden administration.
- Slash in global crude oil production leads to increase in oil prices.
- The production cut by OPEC+ would also help Russia in pushing the export sales of domestic crude oil.

### Proposed bill

- The US government has proposed a bill, which if passed, would lead to antitrust lawsuits (suit filed for anti-competitive practices) against oil producing countries.
- The No Oil Producing and Exporting Cartels (NOPEC) bill is intended to protect U.S. consumers and businesses from engineered oil spikes.
- It has not yet been signed into law.

### Possible impact

- The NOPEC bill would revoke the sovereign immunity that has protected OPEC+ members and their national oil companies from lawsuits.
- If signed into law, the U.S. attorney general would gain the option to sue the oil cartel or its members, such as Saudi Arabia, in federal court.
- It is unclear exactly how a federal court could enforce judicial antitrust decisions against a foreign nation.

# Nobel Prize in Chemistry 2022

Relevance: Prelims



## Awardees

- The Nobel Prize in Chemistry 2022 has gone to Carolyn R Bertozzi (from USA), Morten Meldal (from Denmark) and K Barry Sharpless (from USA), the latter winning the second Nobel of his career.
- The three have been awarded for their work in 'click chemistry'.

## Click chemistry

- Chemists often try to recreate complex chemical molecules found in nature, and this has applications, among other things, in the field of medicine – how to target and block pathogens in cells. However, this process can be complicated and time-consuming.
- According to the Nobel website, “Instead of trying to wrangle reluctant carbon atoms into reacting with each other, researchers recommended to start with smaller molecules. If chemists choose simple reactions – where there is a strong intrinsic drive for the molecules to bond together – they avoid many of the side reactions, with a minimal loss of material.
- This method for building molecules is called click chemistry, saying that even if click chemistry cannot provide exact copies of natural molecules, it will be possible to find molecules that fulfil the same functions.

# Nobel Prize in Chemistry 2022

Relevance: Prelims



## Individual Contributions

- To simplify, **Sharpless** came up with the term '**click chemistry**' and worked extensively on it.
- Meldal, independently of Sharpless, came up with **a special chemical structure called 'triazole'** which has many significant applications.
- Bertozzi took the next step of developing **click reactions** that could work inside living organisms — '**bioorthogonal**' reactions (a term she coined).

# Nobel Prize in Literature 2022

## Relevance: Prelims

- The Nobel Prize for Literature 2022 has gone to **French author Annie Ernaux**.
- According to the Swedish Academy, she has been awarded for “the **courage and clinical acuity with which she uncovers the roots, estrangements and collective restraints of personal memory**”.

# Syrups manufactured in India behind deaths in Gambia

Relevance: Prelims & Mains Paper III; Miscellaneous

## WHO findings

- WHO has mentioned that the **Cold-and-cough syrup** manufactured by **Haryana-based Maiden Pharmaceuticals Limited** is responsible for **death of 66 children in Gambia**.
- The syrup shipments were **contaminated with diethylene glycol (DEG) and ethylene glycol** that may have caused **acute kidney failure**.
- The Indian government has said that a full report from WHO, establishing a clear, causal link is awaited.

## Response of Indian government

- India's apex drug regulator, **the Central Drugs Standard Control Organisation (CDSCO)**, has **barred Haryana-based Maiden Pharmaceuticals Limited** from manufacturing medicinal drugs.
- The Union Health Ministry has constituted a technical committee to advise the Government on its future course of action against the company.
- The provisions of **India's Drugs and Cosmetics Act** prescribe imprisonment up to **10 years** and **fines up to ₹10 lakh** for making **adulterated drugs**.
- However, it is **difficult to prove in courts** that whether adulterated drugs were behind the deaths or other mis-happenings.

→ miscellaneous



# CULTURE

# Archaeological findings in Bandhavgarh Tiger Reserve

Relevance: Prelims & Mains Paper I; Culture

## 26 Buddhist caves

- The Archaeological Survey of India (ASI) reported **26 Buddhist caves in Madhya Pradesh's Bandhavgarh Tiger Reserve.**
- The 26 caves that were found are associated with the **Mahayana sect** of Buddhism. These caves date back to the **2nd-5th century BCE.**
- These caves date back to the **same time as the Ajanta caves in Aurangabad**, a UNESCO World Heritage Site.



# Archaeological findings in Bandhavgarh Tiger Reserve

Relevance: Prelims & Mains Paper I; Culture



## Other findings

- The team also found the remains of
  1. 26 temples
  2. 2 Mathas
  3. 2 stupas
  4. 46 idols and sculptures
  5. 26 pillar fragments
  6. 19 water bodies
  7. 24 Brahmi inscriptions

## About the exploration

- The exploration was conducted this year by the **Archaeological Survey of India** (ASI's) newly formed Jabalpur Circle. The team covered nearly 170 sq km within the reserve's core area.
- Bandhavgarh was **declared a national park in 1968** and became a **tiger reserve in 1993**. The ASI stated that explorations in the region had been undertaken for the first time since 1938.

# Lothal- to get heritage complex

Relevance: Prelims & Mains Paper I; Culture

## Lothal

- The construction of the **National Maritime Heritage Complex (NMHC)** is undergoing at **Gujarat's Lothal**.
- 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**.

## Named after

- The **meaning of Lothal** (a combination of **Loth and thal**) in Gujarati is “the mound of the dead”.
- Incidentally, the name of the city of **Mohenjo-daro** (also part of the Indus Valley Civilisation, now in Pakistan) means the same in Sindhi.
- Lothal was **nominated in April 2014 as a UNESCO World Heritage Site**, and its application is pending on the tentative list of UNESCO.



## Discovery of Lothal

- Indian archaeologists started the search for cities of the Harappan Civilisation post-1947 in Gujarat's Saurashtra.
- **Archaeologist SR Rao** led the team which discovered a number of Harappan sites at the time, including the port city of Lothal.
- Excavation work was carried out in Lothal between **February 1955 and May 1960**. According to the Archaeological Survey of India (ASI), Lothal had the **world's earliest known dock, connecting the city to an ancient course of the Sabarmati river.**
- In later excavations, **ASI unearthed a mound, a township, a marketplace, and the dock.**

## National Maritime Heritage Complex

- The project began in March 2022, and is being developed at a cost of **Rs 3,500 crore**. It will have several innovative features such as Lothal **mini-recreation**, which will recreate Harappan architecture and lifestyle through immersive technology; besides four theme parks.
- The complex will act as a **centre for learning and understanding** India's maritime history.
- It will also help Lothal emerge as a world-class international **tourist destination**.