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NEWS JUICE MONTHLY

1st August to 31st August, 2022

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



POLITY & GOVERNANCE

How and why are districts created or abolished in India?



Relevant for GS Prelims & Mains Paper II; Polity & Governance

Why in news?

- The **West Bengal** cabinet has approved the creation of seven new districts in the state. This will take the number of districts in West Bengal to **30 from the existing 23**.
- In April this year, **Andhra Pradesh** Chief Minister Y S Jagan Mohan Reddy **created 13 new districts** in his state. Reddy doubled the number of districts to **26**, Andhra Pradesh had only 13 districts.

Reason for Creation

- **Smaller units** would make **governance easier** and would benefit the people by bringing the government and the administration closer to them, and making them **more accessible**.
- Sometimes, the decision to create a new district is driven by **local demands**.

How and why are districts created or abolished in India?



Relevant for GS Prelims & Mains Paper II; Polity & Governance

Procedure for Creation or scrapping

- This **power lies with the state governments**, who can pass a **law in the Assembly or simply issue an order and notify it in the gazette**. The **Centre does not have a say in the matter**.
- The **central government does play a role**, however, when a **change of name of a district or railway station** is contemplated. The request of the state government in this regard is sent to several central government departments before a **no-objection certificate** is issued.

Creation of new Districts

- The number of districts around the country has been going up steadily over the years.
- The 2001 Census recorded 593 districts, which went up to 640 in 2011. India currently has **more than 775 districts**.
- **Uttar Pradesh has the most districts (75)** in the country, followed by Madhya Pradesh (52). **Goa, by contrast, has only 2 districts**.

What rules govern disposal of seized narcotics?

Relevance: Prelims & GS Mains Paper II; Polity & Governance

Why in news?

- The **Narcotics Control Bureau (NCB)** on July 30 destroyed 30,000 kg of seized drugs at four locations – Kolkata, Chennai, Delhi and Guwahati — in the virtual presence of Union Home Minister Amit Shah.
- The narcotic substances were destroyed under a drug disposal campaign that began June 1 as part of 'Azadi ka Amrit Mahotsav'.

Law that allows the destruction of seized drugs

- ▶ **Section 52-A of the Narcotics Drugs and Psychotropic Substances (NDPS) Act, 1985** allows probe agencies to destroy seized substances after collecting required samples.
- ▶ Officials concerned must make a **detailed inventory** of the substance to be destroyed.
- ▶ **Every law enforcement agency competent to seize drugs is authorised to destroy them after taking prior permission of the area magistrate.** These include state police forces, the CBI and the NCB among others.

Pending cases in High Courts and Women Judges

Relevant for GS Prelims & Mains Paper II; Polity & Governance

Why in news?

- Law Minister Kiren Rijju said in a written reply in Rajya Sabha
- Over 59 lakh cases were pending in the High Courts
- 4 women judges serving in the Supreme Court and 96 in the High Courts

CASES PENDING IN HIGH COURTS ALL INDIA: 59,57,454

High Court	Pending cases*	High Court	Pending cases*
Allahabad	10,26,417	Telangana	2,58,932
Rajasthan	6,05,215	Patna	2,20,403
Bombay	5,92,583	Andhra Pradesh	2,35,482
Madras	5,63,595	Calcutta	2,15,859
Punjab & Haryana	4,50,527	Odisha	1,85,567
Madhya Pradesh	4,17,003	Gujarat	1,58,512
Karnataka	2,96,965	Delhi	1,05,814

*As of July 22, 2022

WOMEN JUDGES IN HIGHER JUDICIARY
SUPREME COURT: 4

Women judges	High Courts	Total
12 each	Delhi, Madras	24
9	Telangana	9
8	Bombay	8
7 each	Calcutta, Punjab & Haryana	14
6 each	Gujarat, Kerala	12
5 each	Allahabad, Karnataka	10
4	Andhra Pradesh	4
3	Madhya Pradesh	3
2 each	Gauhati, Himachal Pradesh, J&K and Ladakh, Rajasthan	8
1 each	Chhattisgarh, Jharkhand, Odisha, Sikkim	4
Nil	Manipur, Meghalaya, Tripura, Patna, Uttarakhand	0
Grand total	25 High Courts	96

Figures as of July 25, 2022

Withdrawal of Data Protection Bill

Reason for Withdrawal

- A data protection law for India has been in the works since 2018, when a panel led by Justice Srikrishna, a retired judge of the Supreme Court, drew up a draft version of a Bill.
- The draft was reviewed by the review by a Joint Committee of Parliament (JCP), which submitted its recommendations along with a draft Bill in November 2021.
- Union IT Minister Ashwini Vaishnaw- "The Personal Data Protection Bill, 2019 was deliberated in great detail by the Joint Committee of Parliament. Considering the report of the JCP, a comprehensive legal framework is being worked upon."

Opposition to Draft bill

- ▶ The Bill was also seen as being too "compliance intensive" by startups of the country.
- ▶ The tech companies had, in particular, questioned a proposed provision in the Bill called data localisation, under which it would have been mandatory for companies to store a copy of certain sensitive personal data within India, and the export of undefined "critical" personal data from the country would be prohibited.
- ▶ The activists had criticised, in particular, a provision that allowed the central government and its agencies blanket exemptions from adhering to any and all provisions of the Bill.
- ▶ The delays in the Bill had been criticised by several stakeholders, who had pointed out that it was a matter of grave concern that India did not have a basic framework to protect people's privacy.

Legal provisions on protecting children against corporal punishment



Relevant for GS Prelims & Mains Paper II; Polity & Governance

Why in news?

- Three private school teachers in Pune have been booked under the Juvenile Justice Act over allegedly thrashing three Class 10 students, and threatening to grade them poorly in internal assessments.

What is corporal punishment?

- There is no statutory definition of 'corporal punishment' targeting children in the Indian laws. By definition, corporal punishment means physical punishment that is physical in nature.
- The Right of Children to Free and Compulsory Education (RTE) Act, 2009 prohibits 'physical punishment' and 'mental harassment' under Section 17(1) and makes it a punishable offence under Section 17(2).

Physical punishment

- Defined under Guidelines for Eliminating Corporal Punishment in Schools issued by the National Commission for Protection of Child Rights (NCPCR)
- Physical punishment is understood as any action that causes pain, hurt/injury and discomfort to a child.
- Includes not just hitting but also making children assume an uncomfortable position, forced ingestion of anything or detention in any closed space in the school.

Legal provisions on protecting children against corporal punishment



Mental harassment

- Non-physical treatment that is detrimental to the academic and psychological well-being of a child.
- It includes sarcasm, calling names and scolding using humiliating adjectives, intimidation, using derogatory remarks for the child, ridiculing or belittling a child, shaming the child and more.

Legal Provisions

- Right of Children to Free and Compulsory Education (RTE) Act, 2009 prohibits 'physical punishment' and 'mental harassment' under Section 17(1) and makes it a punishable offence under Section 17(2).
- Section 75 of the Juvenile Justice Act prescribes punishment for cruelty to children. The punishment would be rigorous imprisonment upto five years and fine up to Rs 5 lakh.
- If the child is physically incapacitated or develops a mental illness or is rendered mentally unfit to perform regular tasks or has risk to life or limb, then imprisonment may extend upto ten years.
- Corporal punishment is also covered by all the provisions under Indian law that punish perpetrators of physical harm. These provisions are same for adults and children.

PESA Act and Gujarat



Relevance: Prelims & GS Mains Paper II; Polity & Governance

About PESA

- The PESA Act was enacted in 1996 "to provide for the extension of the provisions of Part IX of the Constitution relating to the Panchayats to the Scheduled Areas".
- Under the PESA Act, Scheduled Areas are those referred to in Article 244(1), which says that the provisions of the Fifth Schedule shall apply to the Scheduled Areas and Scheduled Tribes in states other than Assam, Meghalaya, Tripura, and Mizoram. The Fifth Schedule provides for a range of special provisions for these areas.

Objective of PESA

- The PESA Act was enacted to ensure self-governance through Gram Sabhas (village assemblies) for people living in the Scheduled Areas.
- Ten states — Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, and Telangana — have notified Fifth Schedule areas that cover (partially or fully) several districts in each of these states.

Issue in Gujarat

- The Act has not been enforced in letter and spirit.

New Vice President



Relevance: Prelims & GS Mains Paper II; Polity & Governance

Election

- The Vice-President is elected by members of an electoral college consisting of both the houses of Parliament (both elected as well as nominated).
- Both Nominated and Elected
- Only Member of Parliament

Jagdeep Dhankhar

- 16th Vice-President of India - Secured 528 votes against 182 votes secured by Opposition candidate, Margaret Alva
- In 1989, Dhankhar became Member of Lok Sabha from Jhunjhunu, Rajasthan.
- Appointed as Minister of State for Parliamentary affairs in VP Singh led government when Devi Lal became Deputy Prime Minister. After VP Singh dismissed Devi Lal in 1990 over differences, Dhankhar also resigned.
- Devi Lal became Deputy PM in the minority government led by Chandrashekhar. Dhankhar became minister. Government fell after 6 months.
- Became MLA from Congress ticket in 1993
- 1993 to 2016 Practiced as Lawyer- 2016 joined BJP
- 2019- Became Governor of West Bengal



Electricity Bill – promise, problems



Relevance: Prelims & GS Mains Paper II; Governance

Amendments Proposed

The bill has been approved by Union Cabinet and table in Lok Sabha titled – Electricity (Amendment) Bill 2022.

Mains Provisions:

- The Bill has proposes competition in retail distribution of power by offering the customers the option to choose electricity suppliers, just like they can choose telephone or internet service providers.
- The Bill makes provision for “mandatory” fixing of minimum as well as maximum tariff ceilings by the “appropriate commission” to avoid predatory pricing by power distribution companies and to protect consumers.
- The amendment Bill has several provisions to ensure graded and timely tariff revisions that will help provide state power utilities enough cash to be able to make timely payments to power producers.
- The bill seeks to strengthen payment security mechanisms and give more powers to regulators.



Criticism

- Privatization of power distribution
- Did not consult State governments
- Will gradually increase rates

Benefits

1. End practice of free electricity by Power distribution companies (Discoms)
2. Discoms will be able to make timely payments to Gencos
3. Timely tariff revision

Relevance: Prelims & GS Mains Paper II; Polity & Governance
Why is news?

- Recently, **Manipur Legislative Assembly** adopted resolution to implement the **National Register of Citizens (NRC)** and establish a **State Population Commission (SPC)**.
- The resolution came after more than two dozen organisations, most of them tribal, demanded an Assam-like NRC to protect the indigenous people from a perceived demographic invasion by “non-local residents”.

Need for NRC

- According to data presented in the Manipur Assembly, the population growth rates in the hill districts of the State were 153.3% between 1971 and 2001 and 250.9% between 2001 and 2011 compared to the corresponding national growth rate of 87.67% and 120% respectively.
- The **abnormal population growth rates** of the hill districts point to a strong possibility of a huge influx of non-Indians.

Relevance: Prelims & GS Mains Paper II; Polity & Governance
Failure of ILP System

- In December 2019, **Manipur** became the fourth northeastern State to be brought under the inner-line permit (ILP) system after Arunachal Pradesh, Mizoram and Nagaland.
- A temporary official travel document to allow inward travel of an Indian citizen into a protected area, the ILP is implemented under the British-era Bengal Eastern Frontier Regulation.
- But less than two years later, an umbrella organisation that spearheaded the ILP movement said the **system was flawed**

NRC in other States

- Assam** is the only State in the region that undertook an exercise to update the NRC of 1951 with March 24, 1971, as the cut-off date for citizenship of a person.
- The **complete draft of the Assam NRC** was published in August 2019, excluding 19.06 lakh out of 3.3 crore applicants, which the BJP-led government in the State and some **indigenous groups** have refused to accept.
- Their **petitions for re-verification** of the NRC to weed out “Bangladeshis”, allegedly included erroneously or fraudulently, are pending before the Supreme Court, which had monitored the exercise.

Why is news?

- High sales of the flag as people prepare to celebrate the 75th Independence Day by participating in the government's **Har Ghar Tiranga** campaign, being held under the **Azadi Ka Amrit Mahotsav programme**.
- The purpose is to spread the message of **patriotism**, but not many know that there are a number of rules surrounding the act of hoisting or displaying the Tiranga.
- These instructions are contained in the **Flag Code of India 2002**, which came into effect on **January 26, 2002**, and upheld by the **Prevention of Insults to National Honour Act, 1971**.

1. Who is allowed to fly a national flag and on which days?

Any person, organisation, private or public, or educational institution (including scout camps) can hoist or display the Tricolour on "**all days or occasions** in accordance with the dignity and honour of the National Flag".

If the flag is placed in the open or on the house of a member of the public, it may be **flown day and night**.

2. What are the dimensions of national flag?

The flag can be as **big or small** as one wants "but the ratio of the length to the height (width) of the National Flag shall be **3:2**". So, the flag must always be a **rectangle** rather than square or any other shape.

3. What can be the material of National Flag?

Handspun and handwoven or machine-made, cotton, polyester, wool, silk or khadi bunting

Polyester has been added by amendment on December 30, 2021.

4. What if your flag is damaged by the elements or otherwise?

It is against rules to display a damaged or untidy National Flag.

The National Flag must be **displayed** in a **position of honour** and should be **distinctly placed**. **No other flag shall be placed higher than or above or side by side** with the National Flag.

Nor shall any object including flowers or garlands, or emblem be placed on or above the flagmast (flag pole) from which the National Flag is flown.

No advertisements should be festooned to the pole from which it flies.

5. Is it ok to wear the Tricolour in a display of love for the nation?

A person is **forbidden by law to use the national flag "as a portion of costume or uniform"**.

It cannot be used as an accessory to be worn below the waist of any person "nor shall it be embroidered or printed on cushions, handkerchiefs, napkins, undergarments or any dress material".

6. Can it be put up on vehicles?

The National Flag **cannot be flown on any vehicle except those of the President, Vice President, Prime Minister, Governor and other dignitaries**.

The flag should also **not be used to cover the sides, back, and top of any vehicle**.

7. What should you do with the Tricolour after Independence Day?

The Tricolour should not be stored in a way that might dirty or damage it.

In case your flag is damaged, the Flag Code instructs you not to cast it aside or treat it disrespectfully but “destroy it as a whole in private, preferably by burning or by any method consistent with the dignity of the flag”.

People, who are waving flags made of paper, should not throw these on the ground after the ceremony. The flag “shall not be allowed to touch the ground or the floor or trail in the water”.

8. What is the punishment for disrespecting the flag?

According to **Section 2 of the Prevention of Insults to National Honour Act, 1971**, “whoever in any public place or in any other place within public view burns, mutilates, defaces, defiles, disfigures, destroys, tramples upon or otherwise brings into contempt (whether by words, either spoken or written, or by acts) the Indian National Flag....shall be punished with **imprisonment for a term which may extend to three years or with a fine, or with both**”.

Source: Indian Express

The dangers and legal status of the ‘Chinese’ manjha

Relevance: Prelims & GS Mains Paper II; Polity & Governance

Why is news?

- This year, at least three motorcyclists died after the manjha either slit their throats while riding, or after it got entangled in the wheel of the bike and led to an accident.
- Every year, as Independence Day inches closer, Delhi’s streets become witness to deaths and injuries because of the ‘Chinese’ manjha.

What is Chinese manjha?

- The Chinese manjha is a **glass-coated synthetic string** used to fly kites. It is made of **monofilament strings**. Monofilament strings are **deadly because they are very hard to break**. They are made by melting and mixing polymers, and after the strings are formed, they are then coated with glass. Stretched tight, monofilament strings have the ability to injure humans and animals alike.
- The name of the string is misleading because it is not imported from China, but is rather produced domestically. The string is made in and around UP’s Bareilly and in parts of Madhya Pradesh, from where it is mostly sold online.

The dangers and legal status of the 'Chinese'



Relevance: Prelims & GS Mains Paper II; Polity & Governance

Legal Position

- In 2016, two children died in separate but similar incidents on Independence Day, when they were looking out of the sun roof of their family cars and had their throats slit by kite string. Every year, as Independence Day inches closer, Delhi's streets become witness to deaths and injuries because of the 'Chinese' manjha.
- The Delhi government passed a notification banning glass coated manjha. The matter was taken by NGT. It ordered a complete ban on manjha made of nylon or any synthetic material.
- The ban, however, has been tough to impose. There has been petition in Delhi High Court seeking to ban kite flying.
- On August 5, the Delhi High Court refused to pass any direction for a total ban on kite flying in the national capital, and instead directed the Delhi Police to ensure compliance of the National Green Tribunal order banning Chinese synthetic manjha.

Source: Indian Express

DigiYatra



Relevance: Prelims & GS Mains Paper II; Polity & Governance

Why is news?

- The Delhi International Airport Ltd (DIAL), run by GMR, announced the soft launch of the Centre's DigiYatra initiative, rolling out the beta version of its app for Android platforms.
- The Android version of the app is out, while the iOS version is expected to be released in the coming weeks.
- Users can register on the app using Aadhaar credentials, followed by a selfie with the Aadhaar card

What is DigiYatra ?

- DigiYatra envisages that travellers pass through various checkpoints at the airport through paperless and contactless processing, using facial features to establish their identity, which would be linked to the boarding pass.
- With this technology, the entry of passengers would be automatically processed based on the facial recognition system at all checkpoints – including entry into the airport, security check areas, aircraft boarding, etc.

DigiYatra

Relevance: Prelims & GS Mains Paper II; Polity & Governance

DigiYatra Foundation

- DigiYatra project is being implemented by the DigiYatra Foundation
- It is a joint-venture company whose shareholders are the Airports Authority of India (26% stake) and Bengaluru Airport, Delhi Airport, Hyderabad Airport, Mumbai Airport and Cochin International Airport. These five shareholders equally hold the remaining 74% of the shares.
- The DigiYatra Foundation will be the custodian of the passenger ID validation process.
- It will also define the criteria for compliance and guidelines for the local airport systems.
- There will be regular audits of the various compliances and guidelines.

Implementation

- The Airport Authority of India (AAI) will identify the airports where DigiYatra will be implemented in a phased manner.

Increase in Milk Prices

Source: Indian Express

Relevance: Prelims & GS Mains Paper II

Reasons

- Rise in cattle feed cost
- ✓ Heavy rainfall in several parts of the country has resulted in lower green fodder yield.
- Disease in cattle
- ✓ Some major milk-producing states have seen a rise in cases of disease among cattle. Lumpy Skin Disease, which leads to fall in milk output, has been reported in Gujarat, Punjab and Haryana.

Lumpy skin disease (LSD) is an infectious disease in cattle caused by a virus of the family Poxviridae, also known as Neethling virus.

The disease is characterized by fever, enlarged superficial lymph nodes and multiple nodules (measuring 2–5 centimetres (1–2 in) in diameter) on the skin and mucous membranes (including those of the respiratory and gastrointestinal tracts).

- Other factors
- ✓ Transport, logistics, manpower, and energy costs
- Demand-supply mismatch
- ✓ The demand for liquid milk is also high compared to previous years.

Bilkis Bano and Remission to her convicts

Source: Indian Express



Bilkis Bano Ordeal

- Bilkis was brutally gangraped during the **communal violence** that followed the Godhra train-burning incident. She was **21 years old at the time, and five months pregnant**. **Seven members of her family were killed by rioters**.
- Her case was taken up by the National Human Rights Commission (**NHRC**) and **Supreme Court**, which ordered an investigation by the **CBI**.
- The CBI concluded that the **post mortem examination** was carried out shoddily in order to protect the accused.
- The **trial** was moved out of **Gujarat to Maharashtra** after Bilkis Bano received death threats.
- In the **Mumbai CBI court**, charges were filed against **19 men, including six police officers and a government doctor**.

Justice

- In January **2008**, a **special court** convicted **11 accused of conspiring to rape a pregnant woman, murder, unlawful assembly, and of charges under other sections of the Indian Penal Code**. The **Head Constable** was convicted of **“making incorrect records” to save the accused**.
- In **May 2017**, the **Bombay High Court** upheld the conviction and **life imprisonment of 11 people** in the gangrape case, and **set aside the acquittal of seven people, including the policemen and doctors**.
- In **April 2019**, the **Supreme Court** directed the **Gujarat government to give Rs 50 lakh as compensation to Bilkis within two weeks**

Bilkis Bano and Remission to her convicts

Source: Indian Express



Remission of sentences

- Under **Articles 72 and 161** of the Constitution, the **President and Governors** have the power to pardon, and to suspend, remit, or commute a sentence passed by the courts.
- Also, since **prisons is a state subject, state governments have powers under Section 432 of the Code of Criminal Procedure (CrPC) to remit sentences**.
- However, **Section 433A of the CrPC puts certain restrictions on these powers of remission**: “Where a sentence of **imprisonment for life** is imposed on conviction of a person for an offence **for which death is one of the punishments provided by law, or where a sentence of death imposed on a person has been commuted under Section 433 into one of imprisonment for life**, such person shall not be released from prison unless **he had served at least fourteen years of imprisonment**.”

Sentence Review Board

- The Supreme Court has held that states cannot exercise the power of remission arbitrarily, and must follow due process.
- While the **policy varies from state to state, broadly the grounds for remission considered by the Board are the same**.
- **Seriousness of the crime, the status of the co-accused and conduct in jail are the factors considered for granting remission**.

Bilkis Bano and Remission to her convicts

Source: Indian Express



Bilkis Case convict

- Bilkis Bano case convict Radheshyam Shah moved the Supreme Court this year after he had completed 15 years and four months of his life term awarded by a CBI court in Mumbai.
- In an order dated May 13, 2022, a Bench of Justices Ajay Rastogi and Vikram Nath asked the Gujarat government to consider Shah's application for premature release "within a period of two months" as per the State government's 1992 remission policy.
- 1992 remission policy of Gujarat applies to criminal conviction taking place in 2008.
- Fresh remission policy was released by Gujarat in 2014. It does not allow remission for conviction for crime which were investigated for CBI and where prisoners were convicted for murder with rape or gangrape.

Options with Bano

- Legal remedy available to Bilkis now would be to challenge the government's order allowing early release of the 11 convicts, either in the High Court or in the Supreme Court.

New Delhi Excise Policy 2021-22

Source: The Hindu



Relevance: Prelims & Mains Paper II; Governance

What was the Policy?

- The New Delhi Excise Policy 2021-22 was launched in November, 2021. It remained in force till July 31, 2022. Thereafter, it was withdrawn.
- Salient features
 1. Exit of the Delhi government from liquor retail trade
 2. More choice to alcohol consumers by offering more variety of brands — both popular and niche ones — through opening more liquor vendors
 3. Better liquor shopping environment for female citizens through dedicated liquor vends.
 4. Reduced the dry number of days from 20 to 3
 5. Equitable distribution of liquor vends- two in every ward
 6. The number of liquor vends were to increase from 630 to 850.
 7. One person could secure license to operate more than one liquor vend.

New Delhi Excise Policy 2021-22

Source: The Hindu



Relevance: Prelims & Mains Paper II; Governance

What is the controversy around Policy?

- Facilitated opening of liquor vends in locations nears schools, religious places and unauthorized areas.
- Other issues such as rounding of duty and payment of license fee.
- Protests by opposition did not let many liquor vends to open, leading to surrendering or non-renewal of licenses for liquor vends by many traders
- Delhi Lieutenant Governor recommended a CBI probe on the ground that the policy was rife with alleged violations. It has been launched to allegedly provide undue financial favours to liquor licensees.

What happened ultimately?

- Delhi Government had to withdraw the policy because the policy ran into controversy and it failed to achieve its desirable objective of enhancing Delhi government revenue.
- Manish Sisodia has been raided by CBI because he is holding Excise Portfolio in Delhi.
- With both retail and wholesale licensees abandoning their licences or choosing not to renew them, the Delhi government admitted it had been suffering a loss of over ₹193 crore on a monthly basis.

One Nation One Fertiliser scheme

Source: The Indian express



Relevance: Prelims & Mains Paper II; Governance

Government announcement

- The Ministry of Chemicals and Fertilisers announced implementation of One Nation One Fertiliser Scheme.
- Under the new "One Nation One Fertiliser" scheme, manufacturing and marketing companies are allowed to display their name, brand, logo and other relevant product information only on one-third space of their bags. On the remaining two-thirds space, the "Bharat" brand and Pradhanmantri Bharatiya Jan Urvarak Pariyojana logo will have to be shown.
- The single brand name for UREA, DAP, MOP and NPK etc. would be BHARAT UREA, BHARAT DAP, BHARAT MOP and BHARAT NPK etc.
- Also, a logo indicating Fertiliser subsidy scheme namely Pradhanmantri Bhartiya Janurvarak Pariyojna will be used on said fertiliser bags.



One Nation One Fertiliser scheme

Source: The Indian express



Relevance: Prelims & Mains Paper II; Governance

Government's argument

- Determines price and bears subsidy- Prices of Urea (main fertilizer) is fixed by government and government compensates for higher cost of manufacturing or imports by providing subsidy.
- The MRPs of non-urea fertilisers are, on paper, decontrolled. But companies cannot avail of subsidy if they sell at MRPs higher than that informally indicated by the government. So, government decides the price of almost 26 fertilisers (inclusive of urea) and bears subsidy as well.
- Determines regional allocation - The government also decides where they can sell. This is done through the Fertiliser (Movement) Control Order, 1973.
- **Huge subsidy-** The government is spending vast sums of money on fertiliser subsidy (the bill is likely to cross Rs 200,000 crore in 2022-23), plus deciding where and at what price companies can sell, it would obviously want to take credit and send that message to farmers.

Drawbacks

- Disincentivise fertilizer companies from undertaking marketing and brand building.
- Reduced to status of contract manufacturers and importers of government
- Currently, in case of any bag or batch of fertilisers not meeting the required standards, the blame is put on the company. But now, that may be passed on fully to the government. .

Aadhaar-Voter ID linkage

Source: The Hindu



Relevance: Prelims & Mains Paper II; Governance

Logic by Government

- Linkage of Aadhaar with voter IDs will assist in ensuring that only one Voter ID is issued per citizen of India.
- Many migrant workers who may have been registered more than once on the electoral rolls in different constituencies or for persons registered multiple times within the same constituency
- 99.7% of adult population has Aadhaar- higher than any other identity proof
- It is based on biometric identification, which is most reliable means.

Changes in Law

- Parliament passed the Election Laws (Amendment) Act, 2021 to amend the Representation of the People Act, 1950.
- Within this amendment, Section 23(4) was inserted which states that the electoral registration officer may "for the purpose of establishing the identity of any person" or "for the purposes of authentication of entries in electoral roll of more than one constituency or more than once in the same constituency" for citizens already enrolled, require them to furnish their Aadhaar numbers.

Change in Rules

- To reflect this amendment, in June 2022, the government notified changes to the Registration of Electors Rules, 1960.
- Rule 26B was added to provide that "every person whose name is listed in the roll may intimate his Aadhaar number to the registration officer".
- Use of word 'may' and assurances by government and Election Commission suggest that it is optional.

Form 6B

- Form 6B provides the format in which Aadhaar information may be submitted to the electoral registration officer.
- Form 6B provides the voter to either submit their Aadhaar number or any other listed document.
- However, the option to submit other listed documents is exercisable only if the voter is “not able to furnish their Aadhaar number because they do not have an Aadhaar number”.

ELECTION COMMISSION OF INDIA
Form-6B

Letter of information of Aadhaar number for the purpose of electoral roll authentication
(See Rule 26(B) of the Registration of Electors Rules-1960)

I.....(Name of Elector) am enrolled in electoral roll of
.....(Name of Assembly/Parliamentary Constituency) having EPIC
Number

I hereby submit the following information for the purpose of authentication of my entry in electoral roll:-
(Please tick the appropriate box)

(i) Aadhaar No. or

(ii) I am not able to furnish my Aadhaar Number because I don't have Aadhaar number.
Therefore, I hereby submit a copy of one of the following documents :-

(Please tick any one in the appropriate box)

MGNREGA Job Card.
 Passbook with photograph issued by Bank/Post Office.
 Health Insurance Smart Card issued under the scheme of Ministry of Labour.
 Driving License.
 PAN Card
 Smart Card issued by RGI under NPR.
 Indian Passport.
 Pension document with photograph.
 Service Identity Card with photograph issued to employees by Central/State Govt./PSUs/Public Limited Companies.
 Official Identity Card issued to MPs/MLAs/MLCs.
 Unique Identity ID (UDID) Card, issued by M/o Social Justice and Empowerment, Government of India.

Signature of the elector:.....
Name of the elector:.....
E-mail ID/Mobile Number:.....

Place:.....

Aadhaar-Voter ID linkage

Relevance: Prelims & Mains Paper II; Governance

Mandatory linking Opposition

- In Lal Babu Hussein (1995), the Supreme Court had held that the Right to vote cannot be disallowed by insisting only on four proofs of identity — voters can rely on any other proof of identity and obtain the right to vote.
- Would go against the right to informational autonomy (right to privacy)- people have right to decide which document they want to share
- Aadhaar is only a proof of residence and not a proof of citizenship.
- The estimate of error rates in biometric based authentication differ widely. It is estimated that Aadhaar based biometric authentication had a 12% error rate.
- Ruling party may have unfair advantage- Linking of age profiles, castes etc with voter ids.

Supertech twin towers Demolition



Relevance: Prelims & Mains Paper II; Governance

Source: The Indian Express

Supertech Twin Towers

- The towers, Ceyane (29 floors) and Apex (32 floors), that are part of the Emerald Court project of Supertech Ltd, were found to be in violation of multiple regulations regarding construction, and were thus demolished.
- The highest structure in India to be demolished, the towers, located in Sector 93A of Noida, had a height of almost 100 metres — taller than the Qutub Minar.

Matter

- Supertech was granted approval in 2005 by the New Okhla Industrial Development Authority (NOIDA) to build 14 towers with nine floors each, a shopping complex and a garden area.
- However, it revised its project in 2009 to include twin high-rise buildings — Apex and Ceyane.
- NOIDA authority approved the new plan.



Supertech twin towers Demolition



Source: The Indian Express

Legal battle in HC

- The Emerald Court Owners Residents Welfare Association (RWA) moved to the Allahabad High Court in 2012 alleging it was an illegal construction.
- In 2014, the Allahabad High Court ruled that the towers were illegal and ordered demolition.

Legal battle in SC

- The Noida Authority and Supertech approached the Supreme Court challenging this order. On August 31, 2021, the apex court upheld the ruling of the Allahabad High Court and ordered the demolition of the buildings.
- The Supreme Court held
 1. Construction of the twin towers in violation of the minimum distance requirement.
 2. The towers were built without complying with building regulations and fire safety norms.
 3. The modification of the plan — removing the garden area to make way for the construction of Apex and Ceyane — was done without the consent of the flat owners, which violated the Uttar Pradesh Apartments Act, 2010.
 4. It was built through “acts of collusion between the officers of NOIDA and company”, and sanctioned the prosecution of officials for violation of the Uttar Pradesh Industrial Area Development Act, 1976 and Uttar Pradesh Apartments Act, 2010.



PIN Code turns 50 this year

Source: Indian Express



Relevance: Prelims & Mains Paper II; Governance

Why in news?

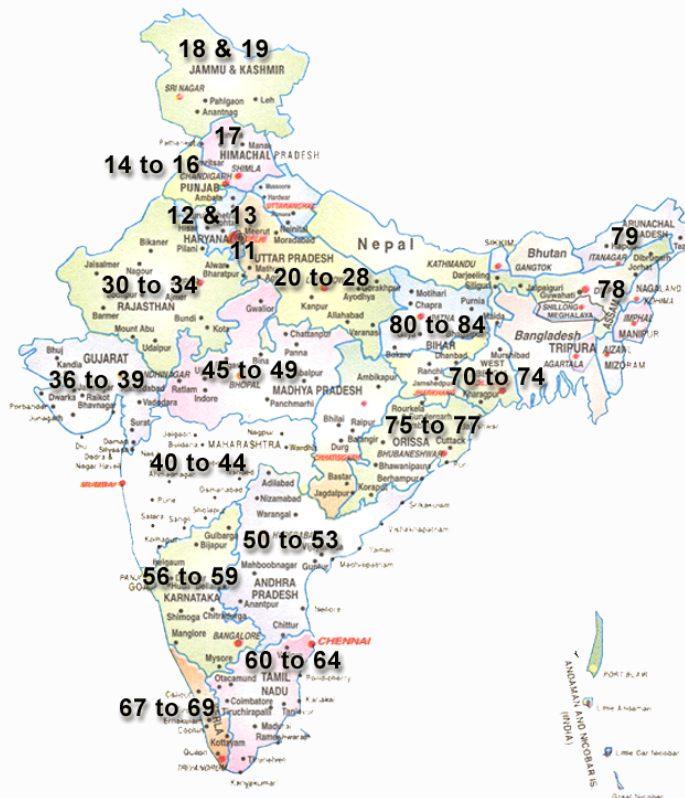
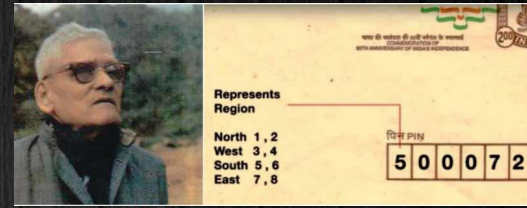
- PIN Code system **turned 50** on 15th August, 2022.
- It was **introduced on August 15, 1972**
- Person behind introduction- **Shriram Bhikaji Velankar**, additional secretary in the Union Ministry of Communications and a senior member of the Posts and Telegraphs Board

Why introduced?

- **Ease the process of mail sorting and delivery**
- Challenges
 - **Different places have same names**
 - Letters are written in a wide **variety of languages**
 - **Largest network** of Post offices

How it works?

- Made up of **6 Digits**
- **First** number indicates the **postal region** — Northern, Eastern, Western, Southern; and number **9**, which signifies the **Army Postal Service**
- **Second** number denotes a **sub-region**
- **Third** represents the **district**
- **Remaining** numbers **narrow the geography** further to the specific post office



NCRB's 'Crime in India' report

Source: The Indian Express



Relevance: Prelims & Mains Paper II; Governance

About the report

- A new edition of 'Crime in India', the annual report of the National Crime Records Bureau (NCRB), was released recently.
- The report provides crime-related statistics of last year.
- Covers wide range of offences ranging from crimes against women to economic and financial crimes.

About NCRB

- Established in January 1986
- Aim of establishing a body to compile and keep records of data on crime.
- Functions under the Union Home Ministry
- Functions
 - Publishing annual reports
 - Collection, coordination and exchange of information on inter-state and international criminals to the respective states
 - Acts as a "national warehouse" for the fingerprint records of Indian and foreign criminals, and assists in locating interstate criminals through fingerprint search
 - Information entered in Police station is validated at District level and finally by NCRB.



PRACTICE
QUESTIONS

Q. Which body has the authority to create a new district in India?

- (a) Union Home Ministry
- (b) State legislature only
- (c) State Executive only
- (d) Both State Legislature and State Executive

Q. Which of the following laws have been passed to secure the welfare of children to the exclusion of adults?

1. Right to Education Act, 2009
2. Juvenile Justice (Care and Protection of Children) Act, 2015
3. Commissions for Protection of Child Rights Act, 2005

Select the correct answer using code given below:

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

Q. Consider the following statements about PESA:

1. PESA is applicable in rural areas of our country covered under Part IX.
2. PESA provides self government for tribals living in Scheduled areas.
3. PESA is applicable in those States which have notified area under fifth schedule.

Select the correct answer using code given below:

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

Q. Which of the following groups participate in elections of both Vice-President and President?

1. Elected members of Lok Sabha
2. Nominated members of Lok Sabha
3. Elected members of Legislative Assemblies
4. Nominated members of Legislative Assemblies

Select the correct answer using the codes given below:

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

Flag Code of India 2002

Q. Consider the following statements about Flag Code of India 2002:

1. The Indian National Flag can be hoisted on private vehicles.
2. The dimensions of the national flag should be 3:2.
3. The damaged National flag can be disposed off in the flowing river.
4. No other object except flowers can be placed on flagmast used to hoist national flag.

Which of the above statements is/are correct?

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

Q. What is DigiYatra?

- (a) The virtual tour of historic sites of India
- (b) The paperless checking of passengers for air travel purposes
- (c) The mandate to passengers to reduce the luggage while travelling
- (d) The mandate to upload vaccination certificates while applying for air tickets

Q. The Ministry of Chemicals and Fertilisers announced implementation of One Nation One Fertiliser Scheme. Which of the following are the provisions of the scheme?

1. Every brand and make of fertiliser will have mention of 'Bharat' over it.
2. Every bag of fertilizer will carry logo of the Pradhanmantri Bharatiya Jan Urvarak Pariyojana.
3. The name 'Bharat' and logo of the scheme shall be mentioned within one-third of the area of the fertiliser bag.

Select the correct answer using the code given below:

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

Q. Consider the following statements regarding linking of Aadhar with Voter ID:

1. Linking of Aadhar with Voter ID has been made mandatory by passing amendment to Representation of people act, 1950.
2. Aadhar is a proof of citizenship but not residence.
3. A voter is required to fill Form 6B to link Aadhar with Voter ID.

Select the correct answer using the code given below:

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

Q. Consider the following statements about Pin Code system of Indian Post:

1. It was introduced on August 15, 1972.
2. Shriram Bhikaji Velankar is credited to introduce the Pincode system in India.
3. Pin Code starting with number 9 represents the army mail.

Select the correct answer using the code given below:

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

Q. The 2001 Census recorded 593 districts, which went up to 640 in 2011. India currently has more than 775 districts. It is alleged that State governments create more and more districts to meet their political compulsions, adding to the financial burden of State administration. Should the power to create new districts be transferred to the Union government? (250 words, 15 marks)

Manipur's NRC

Q. Manipur may go for NRC on the lines of Assam. What are the arguments in support and against NRC exercise? (10 Marks)

**INTERNATIONAL
ORGANISATIONS
&
BILATERAL
RELATIONS**

Nancy Pelosi visit to Taiwan

Relevance: Prelims & GS Mains Paper II; International Relations

History of Taiwan

- **Taiwan is an island** located in the western Pacific Ocean towards the southeast of China, around 160 km from mainland China's coast.
- Taiwan came under **Japan rule**, following the defeat of the Qing dynasty in the first **Sino-Japanese War in 1895**.
- After the **end of the second world war**, the island again came under the control of the **Republic of China**.

PRC and ROC



- Republic of China- Founding Member with permanent seat in UNSC
- Civil War between Communists and Kuomintang
- Mao Zedong and Chiang Kai Shek
- Communist China took control of Mainland China
- PRC – 1st October, 1949
- Communist countries recognised – PRC
- Capitalist Countries recognised – RoC
- 1971- Global community recognised PRC.

On 25th October 1971, the United Nations General Assembly passed resolution that admitted the People's Republic of China and expelled Taiwan.

Nancy Pelosi visit to Taiwan

Relevance: Prelims & GS Mains Paper II; International Relations

One-China Policy and One China Principle

- The **One-China policy** refers to the policy or view that there is only one state called 'China', despite the existence of two governments that claim to be 'China'. As a policy, this means that countries seeking **diplomatic relations** with the People's Republic of China (PRC, Mainland China) must break official relations with the Republic of China (ROC, Taiwan) and vice versa.
- The One-China policy is also different from the '**One China principle**', which state that both Taiwan and mainland China are **inalienable parts of a single 'China'**.

Nancy Pelosi visit to Taiwan

Relevance: Prelims & GS Mains Paper II; International Relations

Present Status

- Differences of opinion exist on the status of Taiwan. **Mainland China regards Taiwan as a breakaway province, and call it 'Chinese Taipei'**, which should eventually become a part of China.
- On the other hand, the **Taiwan government** argues that **Taiwan is a sovereign country**. Taiwan at present has its own **constitution, armed troops and a democratically elected government**.
- **Relations** between China and Taiwan started improving from the 1980s, especially in terms of **trade**.
- Mainland China also proposed to apply the '**one country two systems**' formula to Taiwan, if it accepted reunification with PRC. However, the Taiwan government has rejected this offer.

International Position

- In many international organizations, Taiwan was stopped as being recognized as a separate country. Even the name was changed to 'Chinese Taipei'.
- For instance, International organizations like the IMF and the World Bank have been using the name Chinese Taipei and "Taiwan" does not appear in the list of their member countries.
- The issue remains however on whether Taiwan should be called the 'Republic of China' or 'Chinese Taipei'.

USA Position

- ▶ Since the 1970s, the US policy is described as one of 'strategic ambiguity' where it seeks to balance between the need of having diplomatic relations with China which has emerged as a strong economic power and simultaneously to protect the sovereignty of Taiwan whose economic and political institutions (democracy and capitalism) are inline with those of the USA.
- ▶ The Taiwan Relations Act of USA passed in 1979 stressed that any attack on Taiwan by China would be considered as a 'grave concern' to the USA. It also promised to supply Taiwan with defence weapons.
- ▶ At the same time, the US President withdrew diplomatic recognition to Taiwan to concentrate on strengthening ties with mainland China. (One-China Policy)

India's Stand

- India recognizes 'One China Policy'
- It does not abide by 'One China Principle'.

Recent Visit

- ▶ The Speaker of the House of Representatives, Nancy Pelosi, visits Taiwan, ignoring Chinese threats and a warning by President Xi Jinping, delivered to President Joe Biden last week.
- ▶ Pelosi's visit to Taiwan is the highest-level visit by an American official to the island in a quarter century. The senior US politician has been critical of China on multiple fronts over the decades.
- ▶ Nancy Pelosi, as the Speaker of the House of Representatives (the lower house of the US Congress), is second in line for the post of US President after the Vice President. In her career as a politician, she has frequently criticised China, mainly on grounds of human rights violations.

Global alliance to ensure supply of rare earth elements

Relevance: Prelims & Mains Paper II; International Organisations

Minerals Security Partnership (MSP)

- The US and 10 partners — Australia, Canada, Finland, France, Germany, Japan, the Republic of Korea (South Korea), Sweden, the United Kingdom, and the European Commission — have come together to form the MSP.
- India is not part of this arrangement, but it is working through diplomatic channels to fetch an entry.

Reason for formation

- The MSP will help catalyse investment from governments and the private sector for critical minerals — across the full value chain.
- The new grouping, industry insiders say, could focus on the supply chains of minerals such as Cobalt, Nickel, Lithium, and also the 17 'rare earth' minerals.
- The alliance is seen as primarily focused on evolving an alternative to China, which has created processing infrastructure in rare earth minerals and has acquired mines in Africa for elements such as Cobalt.

Global alliance to ensure supply of rare earth elements

Rare Earth Elements

- The 17 rare earth elements (REE) include the 15 Lanthanides (atomic numbers 57 — which is Lanthanum — to 71 in the periodic table) plus Scandium (atomic number 21) and Yttrium (39). REEs are classified as light RE elements (LREE) and heavy RE elements (HREE).
- Some REEs are available in India — such as Lanthanum, Cerium, Neodymium, Praseodymium and Samarium, etc.
- Others such as Dysprosium, Terbium, and Europium, which are classified as HREEs, are not available in Indian deposits in extractable quantities.
- Hence, there is a dependence on countries such as China for HREEs, which is one of the leading producers of REEs, with an estimated 70 per cent share of the global production.

India's concern

- Minerals like Cobalt, Nickel, and Lithium are required for batteries used in electric vehicles.
- India has an ambitious plan to convert a large percentage of its transport to electric, and would require these minerals. According to the plan, 80 per cent of the country's two- and three-wheeler fleet, 40 per cent of buses, and 30 to 70 per cent of cars will be EVs by 2030.
- "If India is not able to explore and produce these minerals, it will have to depend on a handful of countries, including China, to power its energy transition plans to electric vehicles.

Global alliance to ensure supply of rare earth elements

Relevance: Prelims & Mains Paper II; International Organisations

Chances of securing membership

- Industry watchers say that the reason India would not have found a place in the MSP grouping is because the country **does not bring any expertise** to the table.
- **In the group, countries like Australia and Canada have reserves and also the technology to extract them, and countries like Japan have the technology to process REEs.**

Live-fire exercises

Relevant for GS Prelims & Mains Paper II; International Relations

Why in news?

- In a massive show of strength, China held its **live-fire exercise near Taiwan**, launching **at least 11 ballistic missiles** into the country's coast, a day after **US House speaker Nancy Pelosi visited Taiwan**.

Live-fire exercises

- ▶ They are exercises primarily used by military personnel, in which **live ammunition** is used to create training conditions that are as close to real combat scenarios as possible.
- ▶ **Benefits**
 1. Training and confidence of troops
 2. Capability of equipment
 3. Showcase strength

Used before

- China had previously undertaken a similar show of force during the Third Taiwan Strait Crisis in **1995-1996**, when it fired missiles into the waters near Taiwan, after former President Lee Teng-hui visited the US, despite China's strong objections.

India, Australia to sign film treaty

Relevance: Prelims & GS Mains Paper II; International Relations

Audio Visual Co-production Treaty

- The Union Cabinet has approved the signing of an Audio Visual Co-production Treaty between India and Australia, which is aimed at facilitating joint production of films between the two countries.
- Under such umbrella agreements, private, quasi-government or governmental agencies enter into contracts to produce films together.
- According to the co-production treaty, the respective contributions of the producers of the two countries may vary from 20% to 80% of the final total cost of the jointly produced work.

16th is Australia

1. Bangladesh
2. Brazil
3. Canada
4. China
5. France
6. Germany
7. Israel
8. Italy
9. New Zealand
10. Poland
11. Portugal
12. Republic of Korea
13. Russia
14. Spain
15. UK

India, Australia to sign film treaty

Relevance: Prelims & GS Mains Paper II; International Relations

Reason behind such treaty

- Australia has emerged as a preferred destination for shooting of Indian films.
- India is fast emerging as a major content hub for film-makers looking for new projects. India has abundance of exotic locations, talent pool and relatively cheaper cost of production, making India a favoured destination of foreign film-makers.

Benefits of Such Treaties

1. Boost ties with Australia
2. Exchange of art and culture
3. Generation of employment
4. Use of Indian locations would increase the prospects of the country becoming a preferred film-shooting destination and also lead to inflow of foreign exchange

Relevance: Prelims & GS Mains Paper II; International Organisations**Who is Abdul Rauf Azhar?**

- Jaish-e-Mohammad is a Pakistan-based extremist group whose primary motive is to separate Kashmir from India, and in doing so has carried out several attacks in the country since its inception in 2000.
- JeM is headed by Masood Azhar. Abdul Rauf Azhar is brother of JeM chief Masood Azhar.
- In December 1999, he was involved in hijacking the Indian Airlines flight (IC-814) from Kathmandu to Delhi. The hijacked flight was taken to Taliban-controlled Kandhar. The hijacking was planned to secure the release of his brother Masood Azhar.
- He orchestrated several more attacks on Indian establishments, including the Indian Parliament attack in 2000, the attack on the makeshift Ayodhya Ram temple in 2005, the attack at the Indian Air Force's Pathankot base in 2016, and the Pulwama attack in 2019 that killed 40 Central Reserve Police Force personnel.
- After the Pathankot attack, the National Investigation Agency sought a red corner notice from Interpol against Rauf. The global agency issued a notice against Rauf.

Proposed Sanctions

- The proposal to designate Rauf as a "global terrorist", moved by India and co-sponsored by the US, was moved in the UN Security Council 1267 Sanctions Committee.
- If passed, the sanctions would result in asset freeze, travel ban and arms embargo.
- The motion had to be agreed upon by all 15 members of a Security Council Sanctions Committee to be passed.
- Apart from China, the other 14 member states supported the move.

China's Rationale

- China delayed the imposition of sanctions sought by India and the United States against the deputy chief of Jaish-e-Mohammad, Abdul Rauf Azhar at the United Nations.
- Defending its move, the Chinese Foreign Ministry spokesperson said, "We need more time to assess the application to sanction this individual...."
- This is not the first time China has held the listing of known terrorists.
- In the past, China has also repeatedly blocked proposals to designate JeM chief Masood Azhar.

Controversial visit of a Chinese vessel to Hambantota



Relevance: Prelims & GS Mains Paper II; Int. Rel.

Source: The Hindu

Why in news?

- On August 13, Sri Lanka approved the arrival of a **Chinese satellite-tracking vessel to its southern Chinese-funded Hambantota port**.
- It was the **second approval** from the island nation's Ministry of Foreign Affairs, after it first cleared the visit on July 12.
- India raised concerns** over the ship's visit with President Ranil Wickremesinghe, and officially commented on it, while Indian media splashed headlines of a **"Chinese spy ship"** hovering in the Indian Ocean.

What is the vessel?

- Yuan Wang 5 was described by the Sri Lankan government as a "scientific research ship".
- Vessels of the Yuan Wang class** are said to be used for tracking and supporting satellite as well as intercontinental ballistic missiles by the People's Liberation Army Strategic Support Force.

Nations' Reaction

- India and US have expressed its concern over the Chinese vessel visit.**
- The developments showed that **Colombo was caught between the U.S. and India on the one hand, and China on the other.**

Controversial visit of a Chinese vessel to Hambantota



Relevance: Prelims & GS Mains Paper II; Int. Rel.

Source: The Hindu

Response of China

- China reacted** strongly after Sri Lanka, following concerns voiced by India, requested China to defer the visit of the vessel "in light of the need for further consultations".
- China's arguments:
 - Sri Lanka is a transportation hub** in the Indian Ocean. **Scientific research vessels from various countries including China have made port calls in Sri Lanka for replenishment.**
 - Sri Lanka is a sovereign country.** It has the right to develop relations with other countries based on its development interests.

Sri Lanka

- Sri Lanka allowed the entry of controversial ship under pressure from China**

India gifts Dornier aircraft to Sri Lanka

Relevance: Prelims & GS Mains Paper II; Int. Rel.

Source: The Hindu

Why in news?

- India on Monday handed over a **Dornier aircraft to Sri Lanka**, reaffirming its security ties with the island nation.

Capability

- Undertake **search and rescue operations**
- Maritime surveillance capabilities**

Colombo Security Conclave

- Sri Lanka is a member of the '**Colombo Security Conclave**', that began as a **trilateral initiative involving India, Sri Lanka and the Maldives**, and **later included Mauritius, for maritime cooperation** in the region.
- Sri Lanka Air Force announced that the Indian Air force was gifting it a **Dornier 228 Maritime Patrol Aircraft**, while noting **another aircraft would be donated within two years**.
- The Indian gift was in response to a request from the Sri Lankan government in 2018 for two Dornier Reconnaissance Aircraft to enhance the maritime surveillance capabilities of the island nation

About Dornier aircraft

Source: Mint

Why in news?

- The Dornier 228 is a twin- turboprop utility aircraft of the STOL (Short-Take off and Landing) variety.
- It was designed by DASA Dornier, Fairchild – Dornier (previously Dornier GmbH from 1918-1998).
- It is a **general aircraft with twin engines capable of carrying at least 19 passengers**.

Dornier in India

- In 1983, a **production license was bought by Hindustan Aeronautics Limited (HAL) who set up a manufacturing unit of these aircraft in Kanpur. About 124 aircrafts were built here.**
- The Dornier 228 has been marketed as a general-service aircraft capable of operating in many roles such as military transport, cargo hauler, Maritime Surveillance, Border Patrol, Medical Evacuations, Search and Rescue, Paradrops and Environmental research.
- It is fitted with special equipment such as 360-degree surveillance radar, searchlights, operator stations, enlarged fuel tanks, satellite uplink etc.



FIFA banned India

Source: Indian Express



Relevance: Prelims & GS Mains Paper II; Int. Rel.

Why in news?

- Apex body of the sport, **FIFA, suspended the All India Football Federation**, for “undue influence from third parties”.
- The **Bureau of the FIFA council passed the judgment**.
- The decision has also taken the country's rights to hold the **FIFA U-17 Women's World Cup 2022**, which was scheduled to be held from October 11-30.

Reason

- Praful Patel, who was also a FIFA council member, **refused to relinquish his post as the head of football in the country**.
- On May 18, the **Supreme Court intervened and removed Patel from his post**. The SC also **appointed a Committee of Administrators (COA) to run the AIFF**.
- Thus, AIFF came under control of non-elected body.

About Ban

- As of now, the AIFF has been suspended by FIFA due to **“third-party interference”**. Third-party interference refers to a situation in which **a member association of FIFA fails to remain independent, is co-opted, and no longer has control over its organisation**.
- In this case, **the SC's diktat to the COA to run the AIFF lead to third-party interference**, according to FIFA statutes.

FIFA banned India

Source: Indian Express



Relevance: Prelims & GS Mains Paper II; Int. Rel.

Impact of Suspension

- **No international football** — and this applies to all national teams, across all age groups. It also applies to both men's and women's football, and to all club teams in India.
- The suspension also impacts **international transfers, as well as any courses or developmental programs that AIFF officials could, or were taking part in**. This in effect means a total ban on all football-related activities outside India.
- However, the **league in the country, as well as domestic transfers, can continue**.

Proposed UN High Seas Treaty

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

About Treaty

- **High or Open Seas**- The proposed treaty deals with seas or oceans beyond the exclusive economic zone of nations (upto 200 nautical miles from coast)
- Also referred to as the '**Paris Agreement for the Ocean**'
- The treaty seeks to **protect Biodiversity in High Seas**.

Attempt for making treaty

- As there is **no treaty for conserving the health earth's oceans**, a **UN resolution in 2017** had decided to rectify this while setting **2022 as the deadline**.
- However, the **negotiations have not yet concluded**.
- Negotiations include
 1. establishing **marine protected areas** to put limits on certain activities,
 2. **Environmental impact assessments**
 3. **Financial support to countries** and
 4. **Sharing scientific knowledge**.

Limited Number of Nations Benefit From Most High Seas Fishing

Distant waters accessible only to those with greater resources



97%

of high seas fishing is done by ships flagged to **higher-income countries**



86%

of high seas fishing is done by five countries: **China, Chinese Taipei, Japan, South Korea, and Spain**



100

large fishing corporations are responsible for one-third of all high seas fishing

PRACTICE QUESTIONS

Q. Consider the following statements regarding the Official position of Taiwan in international community:

1. Taiwan is a member of UNGA.
2. Most of the nations recognize One China Policy.
3. India recognises One China Principle.

Select the correct answer using the code given below:

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

Q. Consider the following statements about Minerals Security Partnership (MSP):

1. India and European Commission are founder members of MSG.
2. MSP will promote private and government investments in supply chain of critical minerals.
3. The group will deal with 8 of the 17 Critical minerals.

Select the correct answer using code given below:

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

Q. Consider the following statements about Audio Visual Co-production Treaty:

1. Such treaty facilitate co-production of films between private or government entities of two countries.
2. Australia is going to be the first country with which India is going to sign the treaty.
3. The treaty allows use of resources such as shooting locations and manpower in both the countries.

Select the correct answer using the codes given below:

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

Q. Consider the following statements regarding the motion to declare an individual as “global terrorist”:

1. The motion is undertaken by the UN Security Council Sanctions Committee.
2. If the motion is passed, the sanctions would result in asset freeze, travel ban and arms embargo.
3. The motion had to be agreed upon by all 15 members of a Security Council Sanctions Committee to be passed.

Which of the above statements is/are correct?

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

Q. Chinese vessel of the Yuan Wang Class was in news recently. The Indian government raised objections to the visit in Indian Ocean region by the vessel. What is the capability of this vessel?

- (a) It is an aircraft carrier
- (b) It has capability of Satellite surveillance
- (c) It is a commercial vessel
- (d) It is a defense warship

Q. 1983, a production license was bought by Hindustan Aeronautics Limited (HAL) of the Dornier Aircraft and the manufacturing unit of these aircraft was set up in Kanpur. The Dornier aircraft was originally designed and manufactured in:

- (a) UK
- (b) France
- (c) Sweden
- (d) Germany

Q. Recently, AIFF was suspended by FIFA on account of which of the following reasons?

- (a) Embezzlement of funds in AIFF
- (b) AIFF falling under Committee of Administrators
- (c) AIFF discriminating against the female events
- (d) AIFF's lack of investment in football infrastructure of the country

Q. In recent times, a issue of Taiwan has emerged a hotspot in US-China relations. Discuss US stand on Taiwan and why this stand is opposed by China? (250 words, 15 Marks)

ECONOMICS

3 reasons why GST collections continue to surge

Relevance: Prelims & GS Mains Paper III



Why in news?

- The gross Goods and Services Tax (GST) collections have risen 28 per cent year-on-year to Rs **1,48,995 crore** for **July (for sales in June)**, the **second highest level** since the July 2017 rollout of the indirect tax regime.
- **3 Reasons** for rise
 - **High inflation rate**
 - Buoyancy in **consumption** patterns triggered by the economic recovery
 - **Greater enforcement actions** against anti-evasion activities

GST Collection Trends

- Union Finance Minister Nirmala Sitharaman had said that Rs **1.40 lakh crore** is now the “rough bottom line” for monthly GST revenue collections.
- Before this, GST collections had recorded the highest-ever level of **Rs 1.68 lakh crore in April 2022** for year-end sales in March.
- This is the sixth time that monthly **GST collections have crossed Rs 1.40 lakh crore** mark since inception of GST and **fifth month in a row since March 2022**.

3 reasons why GST collections continue to surge

Relevance: Prelims & GS Mains Paper III



Compensation end to States

- Under GST, as per the **Goods and Services Tax (Compensation to States) Act, 2017**, the states were guaranteed compensation at the **compounded rate of 14 per cent** from the **base year 2015-16** for losses arising due to implementation of the taxation regime for five years since its rollout.
- **This came to an end on June 30, 2022.**
- The GST Council meeting held in June did not take any decision to extend the compensation mechanism despite at least a dozen states making a demand for the same.

India's Monthly trade deficit surges to over \$31 bn



Relevance: Prelims & GS Mains Paper III

Why in news?

- India's trade deficit has widened to a record **\$31.02 billion in July**.
- This is a **three-times increase** from the \$10.63 billion trade deficit reported in July last year.

What is trade deficit?

- Balance of Trade = Exports of goods – Imports of goods**
- Trade Deficit** = Balance of Trade is negative (Imports of goods are more than Exports of goods)
- Trade Surplus** = Balance of Trade is positive
- Reason of Trade Deficit**
 - Shrinking Exports
 - Rising Imports

Impact of Trade Deficit

- Reduction in forex
- Fall in value of currency

Source: The Hindu

Pune's Rupee Cooperative Bank to shut down



Relevance: Prelims & GS Mains Paper III; Economics

Banking License

- Financial institutions wishing to carry out banking operations such as accepting deposits or lending have to obtain a **licence from India's central bank**.
- The RBI issues the licence under the **Banking Regulation Act of 1949** after carrying out a series of checks about the financial suitability of the applicant institution.
- Parameters** like **capital adequacy ratio (CAR)** — the ratio of a bank's available capital to its risk weighted credit exposure — and **loan to deposit ratio (LDR)** — the ratio of a bank's total loans to total deposits in the same period — are checked before the licence is granted. The 1949 Act in particular stresses on adequate capital and protection of the public interest before the licence is granted.

Cancellation of License

- RBI**, which issues the licence, **has the power to cancel it as well**, in case the bank fails to satisfy laid-down conditions.
- If the **RBI feels a bank does not have enough capital to cover its exposure and pay its depositors**, its licence can be suspended or cancelled.
- Cancellation of license is adopted as **last resort**.

License Cancellation of Rupee Cooperative Bank

- The **RBI audits banks every year**, and can take action if it notes an increase in bad debts or other suspicious activities in their books.

- In its press release issued on August 10, the RBI gave the reasons for the cancellation of the bank's licence:

- * **The bank does not have adequate capital and earning prospects.**

- * **The bank with its present financial position would be unable to pay its present depositors in full; and**

- * **Public interest would be adversely affected if the bank is allowed to carry on its banking business any further**

Fate of depositors

- The **limiting of withdrawals** by RBI had made things difficult for depositors, especially because cooperative banks are preferred by those from the lower income group.

- The **RBI has said that depositors with Rs 5 lakh or less in the bank** (in the form of any financial instrument like fixed deposits or savings accounts, etc.), would get back all of their money through the **Deposit Insurance and Credit Guarantee Corporation (DICGC)**.

- Those **who have larger deposits in the bank will not get back their money beyond Rs 5 lakh**. In this group are about 4,600 depositors with a total Rs 340 crore in deposits in the bank. These people stand to suffer major losses.

Source: The Hindu

Digital lending under RBI framework

Relevance: Prelims & GS Mains Paper III; Economics

Why is Digital Lending?

- Digital lending **utilises automated technologies and algorithms for decision making, customer acquisition, disbursements and recovery**. Not only does it **lower costs** but also ensures **speedy disbursement**.

- **Lending Service Providers (LSPs) act in partnership with Non-Banking Financial Companies (NBFCs) who disburse credit (or a line of credit) to the customer using the former's platform.**

Questionable Practices

- LSPs often resort to **reckless lending including mis-selling, breach of data privacy, unfair business conduct, charging of exorbitant interest rates, and unethical recovery practices**.

- The customers particularly include **small borrowers without a documented credit history**.

- They primarily provide **short-term loans**, especially those which have shorter tenures of **less than 30 days**.

- There were about **1,100 lending apps** available for Indian android users of which about **600 were illegal**.

- They were either **unregulated by the RBI or had NBFC partners with an asset size of less than ₹1,000 crore**. The space is largely dominated by NBFCs.

RBI Regulations on Digital Lending

- On **August 10**, the **Reserve Bank of India (RBI)** instituted a framework for regulating the digital lending landscape in the country.
- The RBI has mandated that **all loan disbursements and repayments are to be executed directly between the bank accounts of the borrower and the entity**, eliminating the involvement of LSP's nodal pass-through account.
- Before executing the contract, **lenders would have to inform the borrower in a standardised format about all fees, charges as well as the annual percentage rate (APR)**. The latter refers to the **annual rate that is charged for borrowing a loan and is inclusive of processing fees, penalties and all other charges associated with it**.
- Further, LSPs **cannot raise the credit limit of their customers without prior consent**.
- Also, to address the need for a dedicated resolution framework, **entities would have to appoint a grievance redressal officer**. The ecosystem would also fall under the purview of the **RBI's Integrated Ombudsman Scheme (RB-IOS)** should the complaint not be resolved within 30 days of receipt.

RBI Regulations on Data Privacy

- All data collected by the apps should be "**need-based**" and must be with **prior and explicit consent** of the borrower.
- Users can also **revoke previously granted consent**.
- The **information to be collected must be stated in the privacy policy during enrolment**.
- Considering the multi-sided nature of the business, the RBI has put forth that **user consent would be mandatory for sharing any personal information with a third-party**.
- This regulation would also address concerns emanating from **TechFin** (companies that are primarily tech-based service providers, say e-commerce, and also offer financial services). They are known to **leverage their existing user data from non-financial business to offer more suitable financial services**, which may involve third parties and vice-versa.

Why will airlines have to share PNR data?

Relevance: Prelims & GS Mains Paper III; Economics

Why is news?

- The **Passenger Name Record Information Regulations, 2022**, notified by the **Central Board of Indirect Taxes and Customs (CBIC)** under the Ministry of Finance, on August 8, requires airlines to **mandatorily provide details of all international passengers on flights arriving into and departing from India to the Customs department.**
- This is for **preventing and prosecuting offences under the Customs Act, 1962** relating to smuggling of narcotics, gold, arms & ammunition that impact national security..

Regulations

- Airlines will have to transfer the **“passenger name record (PNR) information”** from their reservation system to the database of the Customs department.
- This includes details such as **PNR, date of reservation, date of travel, credit card number, seat information as well as changes to the PNR.**
- The information will have to be shared **at least 24 hours before departure and failure to comply will invite a penalty of ₹25,000 to ₹50,000 for every act of non-compliance.**
- The CBIC will set up a **database, the National Customs Targeting Centre-Passenger**, to collect passenger information for **“risk analysis”**.
- Such data can also be sought by **other law enforcement agencies or government departments** of India or any other country.

Why will airlines have to share PNR data?

Relevance: Prelims & GS Mains Paper III; Economics

Response of Airlines

- The **International Air Transport Association (IATA)**, a trade association representing 290 airlines globally welcomes the notifying of the PNR regulations by the CBIC.
- This should now **“bring an end to the non-standard passenger data requests** from the airlines, by multiple agencies at various airports/stations.”
- They also say that since they **only pass on the information** submitted by passengers, if data fields are missing or if details provided are fake, they should not be penalised.

Affect on Data Privacy of passengers

- The CBIC says the format for data exchange between airlines and the Customs systems is a **standard electronic message format endorsed jointly by the World Customs Organisation (WCO), International Civil Aviation Organisation (ICAO) and the IATA.**
- Such data will **be retained for a maximum period of five years** after which it will be disposed of.

Central Bank Digital Currency (CBDC)

Source: The Indian Express



Relevance: Prelims & Mains Paper III; Economics

Why in news?

- Reserve Bank of India's (RBI) digital rupee — the Central Bank Digital Currency (CBDC) — may be introduced in phases beginning with wholesale businesses in the current financial year

What is Central Bank Digital Currency (CBDC)?

- CBDC is the legal tender issued by a central bank in a digital form.
- CBDC is the legal tender issued by a central bank in a digital form. Only its form is different.
- The digital fiat currency or CBDC can be transacted using wallets backed by blockchain. (Similarity with crypto)
- CBDCs enable the user to conduct both domestic and cross-border transactions which do not require a third party or a bank. (Similarity with crypto)

Benefits

- Different nature than crypto-currencies- Only legal tender, not asset
- Reduced dependency on cash
- Lower transaction costs
- Reduced settlement risk

Legal Tender- Coins or banknotes that must be accepted if offered in payment of a debt.

Central Bank Digital Currency (CBDC)

Source: The Indian Express



Relevance: Prelims & Mains Paper III; Economics

Changes in laws

- The government had been planning at the time to introduce a Bill in Parliament that would prohibit "all private cryptocurrencies in India" with "certain exceptions".
- Amendment to the Reserve Bank of India Act, 1934 to enhance the scope of the definition of 'bank note' to include currency in digital form.

UPI payment charges ?

Source: The Indian Express



Relevance: Prelims & GS Mains Paper III; Economics

RBI Discussion Paper

- In a **discussion paper** by RBI, the RBI had asked stakeholders **if merchant discount rate (MDR), a fee paid by merchants to acquiring banks, should be brought back for UPI transactions.**
- The RBI paper, seeking feedback on the fee structure for a range of digital payment services through a set of 40 questions, is open for comments till October 3.

MDR on UPI- Rationale

- **MDR, or merchant discount rate, on UPI transactions has been a long-standing demand of the payments industry.** Most other modes of digital retail payments attract a charge on transactions.
- **Currently, the government has mandated a “zero-charge framework” for UPI transactions, with effect from January 1, 2020.** This translates into charges on UPI for users as well as merchants being nil.
- In its discussion paper, the RBI has approximated that with an average value of **Rs 800 for a merchant transaction**, various stakeholders enabling the UPI transaction, including the **payer and beneficiary banks, the third-party app, and the NPCI, incur a cost of Rs 2.**

UPI payment charges ?

Source: The Indian Express



Relevance: Prelims & GS Mains Paper III; Economics

Usage of UPI

- As per official NPCI data, in **July**, there were 628.84 crore UPI transactions representing a value of **Rs 10.63 lakh crore.**
- It has **338 banks** live on the platform.
- Recently, the **RBI allowed UPI on credit cards as well** starting with NPCI's RuPay cards.

Government's argument

- The Finance Ministry stepped in to clarify that the concerns for the service providers for cost recovery have to be met through other means.
- **“UPI is a digital public good with immense convenience for the public and productivity gains for the economy. There is no consideration in Govt to levy any charges for UPI services. The concerns of the service providers for cost recovery have to be met through other means.”**
- It further said that the **government** had provided **financial support** for digital payment ecosystem last year and has announced the same this year.

The Competition (Amendment) Bill, 2022

Source: The Hindu



Relevance: Prelims & Mains Paper III; Economics

Competition Act, 2002

- Passed in 2002, but it came into effect only seven years later.
- The act established the **Competition Commission** to oversee mainly three issues
 - Anti-competitive practices in the market
 - Anti-competitive agreements
 - Abuse of dominance and combinations
- Review Committee** was established in 2019 to ensure that the act is relevant to deal with new age technology companies

Criteria to identify

- Criteria to identify Combination broadened**
- What is Combination? Any acquisition, merger or amalgamation
- ✓ **Earlier – Basis of combined turnover or asset value**
- ✓ **Now proposed – Deals of Rs. 2000 or more should also be brought to notice of Competition Commission**

Time period

- Acquisition, merger or amalgamation deals have to be approved before being executed.
- Earlier – time period of **210** days for approval
- Now proposed- time period of **150** days

The Competition (Amendment) Bill, 2022

Relevance: Prelims & Mains Paper III; Economics



Gun Jumping

- Parties cannot close the deal before approval of Competition Commission. However, if they do so, then it is called Gun jumping.**
- Earlier- **Penalty for Gun jumping was a total of 1% of the asset or turnover.**
- Now Proposed – **1% of the Deal Value**
- Objection to Gun jumping**
 - If acquisition is through **open market purchase of shares**, then prices of shares fluctuate drastically.
- Proposal – **No need to notify open market purchases in advance**

Hub-and-Spoke Cartels

- Hub-and-Spoke arrangement** is a kind of cartelisation in which vertically related players act as a hub and place horizontal restrictions on suppliers or retailers (spokes).
- Earlier- **Entities covered in same trades were covered**
- Now Proposed – **Broaden definition of Anti-competitive agreements to cover entities even from multiple trades**

Director General

- Appointment of the DG by the Commission rather than the Central government**
- DG has the power to conduct investigations, including raids.**

Ambani, Adani and NDTV

Source: The Indian Express



Relevance: Prelims & Mains Paper II; Economics

Why in news?

- **Gautam Adani-led Adani Group** acquired **29.18 per cent** stake in the television channel NDTV Ltd.
- Adani has further said it will launch an **open offer** as required by the Securities and Exchange Board of India (SEBI) to buy another **26 per cent** in the company.

How 29.18% stake was acquired?

- Adani Enterprises Ltd's subsidiary **AMG Media Networks Ltd** bought **Vishvapradhan Commercial Pvt Ltd (VCPL)**.
- **VCPL** has in **2009 and 2010** loaned **Rs 403.85 crore** to NDTV promoter company **RRPR Holding Pvt Ltd**. RRPR Holding was owned by **Radhika Roy and Prannoy Roy**.
- **VCPL** borrowed money from **Reliance Strategic Ventures**.
- Against this **interest-free loan**, RRPR **issued warrants** to VCPL entitling it to convert them into a **99.9 per cent** stake in RRPR. RRPR holds **29.18 per cent** stake in NDTV.

Reaction of Roys

- NDTV said the acquisition was **executed without any input from, conversation with, or consent of NDTV founders Prannoy Roy and Radhika Roy**.
- The **Roys** continue to hold **32.26 per cent** stake in NDTV.
- NDTV has issued notice to Stock Exchange.

New Overseas investment rules

Source: The Indian Express



Relevance: Prelims & Mains Paper III; Economics

New Rules

- The Finance Ministry released the **Foreign Exchange Management (Overseas Investment) Rules, 2022** subsuming existing 2015 regulations.
- Objective
- **Clarity on Overseas Investment**
- Various overseas investment related transactions that were earlier under approval route are **now under automatic route**.

News Rules

- **Resident in India**
 - ✓ Any resident in India **acquiring shares** in a foreign entity will have to **submit an Annual Performance Report (APR)** for each foreign entity, every year **by December 31**.
 - ✓ **No reporting required** where a person resident in India is holding **less than 10%**.
 - ✓ The overall limit for such investments are as per the **Liberalised Remittance Scheme (LRS)** of the Reserve Bank. Currently, the LRS permits **\$2,50,000 outward investment by an individual in a year**.
- **Companies in India**
 - ✓ An Indian entity can make investment **not exceeding 50% of its net worth** as on the date of its last audited balance sheet.



New Overseas investment rules

Source: The Indian Express



Relevance: Prelims & Mains Paper III; Economics

Prohibitions

- Any Indian resident, who has been classified as a **wilful defaulter** or is **under investigation by the CBI, the ED or the Serious Frauds Investigation Office (SFIO)**, will have to obtain a no-objection certificate (**NOC**) from his or her bank, regulatory body or investigative agency before making any overseas "financial commitment" or disinvestment of overseas assets.
- The lenders, the concerned regulatory body or investigative agency fail to furnish the NOC within **60 days** of receiving an application, it may be presumed that they have no objection to the proposed transaction.



PRACTICE
QUESTIONS

Q. Consider the following statements about the GST Collection Trends:

1. The highest ever monthly GST collection has not exceeded Rs. 1,50,000 crores so far.
2. When the GST regime was adopted, the states were guaranteed compensation for losses arising due to implementation of the taxation regime for five years.
3. Usually, the monthly GST collections have been between Rs. 100,000 crore to Rs. 120,000 crore.

Select the correct answer using the code given below:

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

Q. In recent months, India has witnessed very high trade deficit. What are the causes of trade deficit?

1. Falling Imports
2. Increasing Exports
3. Fall in foreign investment

Select the correct answer using code given below:

- (a) 1 only
- (b) 2 only
- (c) 3 only
- (d) None of the above

Pune's Rupee Cooperative Bank to shut down

Q. Presently, the bank deposits are insured in the case of failure of banks to the extent of :

- (a) Rs 5 lakh or less in the bank
- (b) Rs 5 lakh or more in the bank
- (c) Rs 1 lakh or less in the bank
- (d) Rs 1 Lakh or more in the bank

Q. Consider the following statements about The Passenger Name Record Information Regulations, 2022, notified by the Central Board of Indirect Taxes and Customs (CBIC):

1. The guidelines requires airlines to mandatorily provide details of all international passengers on flights arriving into and departing from India to the Customs department.
2. The information will have to be shared at least 24 hours before departure.
3. The failure to comply will invite a penalty of ₹25,000 to ₹50,000 for every act of non-compliance.

Which of the above statements is/are correct?

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

Q. Which of the following statements about proposed Central Bank Digital Currency is incorrect?

- (a) The CBDC will be transacted through wallets backed by blockchain network.
- (b) CBDCs would enable the user to conduct both domestic and cross-border transactions.
- (c) CBDCs would not require a third party or a bank to facilitate a transaction.
- (d) The value of CBDC will depend upon not just inflation, but also the demand and supply of CBDC itself.

Q1. Consider the following statements regarding Gun Jumping in context of anti-competitive practices:

1. Gun jumping reference to acquisition, merger or amalgamation before approval of Competition Commission.
2. Gun jumping is not penalized under the Competition Act, 2002.
3. In the proposed bill, Gun jumping will be penalized at rate of 1% of total asset value post deal.

Select the correct answer using the code given below:

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

Q. What was the need to regulate the Digital Lending Space? The RBI Guidelines to regulate Digital Lending Space released on 10th August regulate not just the Digital Lending Space but also address the data privacy concerns of the consumers. (15 Marks, 250 words)

Q. UPI has accelerated the digital payment ecosystem in our country. Should Merchant Discount Rate should be charged on the UPI transactions? (150 words, 10 marks)

ENVIRONMENT & BIODIVERSITY

India strengthens its climate targets

Relevance: Prelims & GS Mains Paper III

Two new targets

- India's NDC, or **nationally determined commitments**, have been updated with these two promises, both of which are enhancements of existing targets, and would be submitted to the UN climate body.
- The **2015 Paris Agreement** requires every country to set self-determined climate targets which have to be **progressively updated** with more ambitious goals every few years.

Original NDC

- Three main targets for 2030**
 - * A **33 to 35 per cent** reduction in emissions intensity (or emissions per unit of GDP) from **2005 levels**
 - * At least **40 per cent** of total electricity generation to come from non-fossil renewable sources
 - * An **increase in forest cover** to create an additional **carbon sink of 2.5 to 3 billion tonnes** of carbon dioxide equivalent

Glasgow Summit

- At the **Glasgow** meeting last year, Modi promised to strengthen India's climate commitments.
- He made five promises, and called it the **'Panchamrit'**, the nectar that Indians prepare using five ingredients.

India strengthens its climate targets

Relevance: Prelims & GS Mains Paper III

Revised Targets

* India will now reduce its emission intensity by at least **45 per cent**, instead of just 33 to 35 per cent, from 2005 levels by 2030.

* Also, it would now ensure that at least **50 per cent** of its total electricity generation, not just 40 per cent, would come from non-fossil sources by 2030.

* The **forestry** target has **not been touched**.

INDIA'S CLIMATE TARGETS: EXISTING AND NEW

Target (for 2030)	Existing: First NDC (2015)	New: Updated NDC (2022)	Progress
Emission intensity reduction	33-35 per cent from 2005 levels	45 per cent from 2005 levels	24 per cent reduction achieved in 2016 itself. Estimated to have reached 30 per cent
Share of non-fossil fuels in installed electricity capacity	40 per cent	50 per cent	41.5 per cent achieved by the end of June this year
Carbon sink	Creation of 2.5 to 3 billion tonnes of additional sink through afforestation	Same as earlier	Not clear.

India strengthens its climate targets

2 Targets not included

- PM Modi had said that at least **500 GW** of India's installed electricity generation capacity in 2030 would be based on **non-fossil fuel sources**.
- He had promised that the country would **ensure avoided emissions of at least one billion tonnes of carbon dioxide equivalent** between now and 2030.
- **Closely related to other three targets**; progress on others will help achievements on these goals as well

PRIME MINISTER'S PANCHAMRIT ANNOUNCED IN GLASGOW

Promise	Whether included in new NDC
Non-fossil fuel electricity installed capacity to reach 500 GW	Not included
At least 50 per cent of total installed electricity generation capacity to come from non-fossil fuel sources	Included
Reduction of one billion tonnes of carbon dioxide equivalent from cumulative projected emissions between now and 2030	Not included
At least 45 per cent reduction in emission intensity of GDP by 2030	Included
Net zero status by 2030	Never intended to be part of NDC

India strengthens its climate targets

Relevance: Prelims & GS Mains Paper III

Net Zero Target

- Modi had also announced a **net zero target** for India for the year **2070**.
- Net zero is a situation in which a **country's greenhouse gas emissions are offset entirely**, either by absorption of carbon dioxide through natural processes like photosynthesis in plants, or through physical removal of greenhouse gases using futuristic technologies.
- But net zero is a **long-term target** and does not qualify to be included in the NDC which seeks five to 10 year climate targets from countries.

Progress on Emission Reduction

- India's emissions intensity was 24 per cent lower than the 2005 levels in the year 2016 itself.
- It is very likely that the 33 to 35 per cent reduction target has already been achieved, or is very close to being achieved.
- A further reduction of 10-12 per cent from here, to meet the new target, does not appear too challenging.

40% Electricity from non-fossil fuels

- According to the latest data from the power ministry, 41.5 per cent of India's current installed electricity capacity of 403 GW is now powered by non-fossil fuels.
- Renewables (wind, solar and others) alone account for more than 28 per cent of this capacity while hydropower contributes over 11 per cent.

Two not included

500 GW

- Non-fossil fuel electricity generation capacity would touch 500 GW in 2030.
- Of the current installed capacity of 403 GW, over 236 GW, or 58.5 per cent comes from fossil fuel sources, while non-fossil fuels, which include not just renewables like solar or wind but also hydropower, nuclear and others, make up only **167 GW**.
- Capacity additions from non-fossil sources would have to triple in the next 10 years to reach the 500 GW target.

Progress on Emission Reduction

- The promise to **reduce at least one billion tonnes of carbon dioxide equivalent** from the cumulative projected emissions till 2030 was even more problematic.
- According to some estimates, **India's annual projections are expected to rise from about 3.3 billion tonnes in 2018 to about 4 billion tonnes by 2030**.

The coal mining protests in the Hasdeo Aranya region

Relevant for GS Prelims & Mains Paper III

Hasdeo Aranya forests

- ▶ **Hasdeo Aranya forests** are called the lungs of Chhattisgarh.
- ▶ The Hasdeo Aranya (**Aranya means forest**) lies in the **catchment area of the Hasdeo river** and is spread across 1,878 sq km in **North-Central Chhattisgarh**.
- ▶ **Hasdeo river is a tributary of the Mahanadi river** which originates in Chhattisgarh and flows through Odisha into the Bay of Bengal.
- ▶ The Hasdeo forests are also the catchment area for the **Hasdeo Bango Dam** built across the Hasdeo river which irrigates six lakh acres of land, crucial to a State with paddy as its main crop.
- ▶ Besides, the forests are **ecologically sensitive** due to the rich biodiversity they offer and due to the presence of a **large migratory corridor for elephants**.

Coal Mining Clearance

- ▶ Underneath the Hasdeo Aranya is a coalfield that comprises of **22 coal blocks**.
- ▶ In **2010**, the Centre categorised Hasdeo Aranya to be a **“no-go”** zone for mining. It ruled out mining in any of these blocks. However, only a year later, the Ministry of Environment, Forest and Climate Change (**MoEF**) **granted clearance** for the mining for one coal block.
- ▶ At present, of the **22 blocks**, **seven blocks have been allotted to different companies**.
- ▶ **Mining is ongoing in 2 out of the 7 blocks. In rest of 5 blocks, it is stopped due to local opposition.**



The coal mining protests in the Hasdeo Aranya region

Private Member Resolution

- ▶ **An MLA who is not a Minister** — whether she happens to be from the ruling party or not — **is a private member**.
- ▶ A **private member resolution can be brought in by a private member** and if passed, it becomes an expression of what the House thinks.
- ▶ This **is different from a private member bill** which would become law in case of approval.
- ▶ on July 26, the Chhattisgarh Legislative Assembly unanimously passed a private member resolution urging the Centre to cancel allocation of all coal mining blocks in the ecologically sensitive area.

Impact of resolution

- ▶ Chhattisgarh is ruled by Congress government. The principal opposition party is BJP. The present private member resolution was introduced by MLA from Janata Congress Chhattisgarh (J).
- ▶ Despite the members of both the ruling Congress and the principal Opposition BJP adopting it, the resolution isn't expected to change the status quo.
- ▶ While the Congress says the onus is on the Centre to stop mining, the BJP has been asking the State government to withdraw the clearances it has issued to mine developers and operators

Bill to amend the Energy Conservation Act, 2001



Relevant for GS Prelims & Mains Paper III; Environment

Energy Conservation Act Amendment Bill

- ▶ **Bill to amend the Energy Conservation Act, 2001**, has been recently introduced in Parliament.
- ▶ **Two Objectives**
 - The bill seeks to make it **compulsory for a select group of industrial, commercial and even residential consumers to use green energy**. A prescribed minimum proportion of the energy they use must come from **renewable or non-fossil fuel sources**.
 - The bill seeks to establish a **domestic carbon market** and **facilitate trade in carbon credits**.
- ▶ The amendment Bill seeks to **widen the scope of energy conservation to include large residential buildings** as well. Till now, the energy conservation rules applied mainly on industrial and commercial complexes.

Energy Conservation

- ▶ The 2001 law defined **standards for energy conservation and efficiency** to be followed by a **select group of industries and commercial complexes**.
- ▶ **Efficiency standards** were also prescribed for equipment and appliances like **air conditioners or refrigerators**.
- ▶ This law set up **the Bureau of Energy Efficiency (BEE)** to promote the use of more **efficient processes and equipment** in order to save energy.
- ▶ The **star ratings** on various household appliances and the largescale **shift to LED bulbs** were some of the successful initiatives of BEE that have resulted in massive energy savings over a period of time.

New Provisions

- ▶ The amendment Bill seeks to build upon the progress made so far. For example, **just like the standards for appliances and equipment, energy consumption standards would be specified for motor vehicles, ships and other water vessels, industrial units, and buildings**.
- In the case of vehicles and water vessels, fuel consumption norms would be defined.
- The new provisions would empower the government to prohibit the manufacture or import of any vehicles or water vessels if it does not conform to the prescribed energy standards.
- ▶ **New sustainable building codes** are to be defined which **every building with a certain threshold of energy consumption**, whether industrial, commercial or residential. Every such building would have to ensure that at least a **part of its total energy consumption comes from renewable or non-fossil fuel sources**.

Carbon Markets

- ▶ The creation of a **domestic carbon market** is one of the most significant provisions of the proposed amendment Bill.
- ▶ Carbon markets **allow for trading of Carbon Emission reduction certificates at market price**.
- ▶ For example, an industrial unit which outperforms the emission standards stands to gain credits. Another unit which is struggling to attain the prescribed standards can buy these credits and show compliance to these standards. The unit that did better on the standards earns money by selling credits, while the buying unit is able to fulfill its operating obligations.



International Carbon markets

- ▶ Carbon market mechanism was adopted under **Kyoto Protocol in 1997**.
- ▶ A similar carbon market is **envisaged to work under the successor Paris Agreement (2015)**, but its details are still being worked out.
- ▶ **Domestic or regional carbon markets** are already functioning in several places, most notably in **Europe**, where an **emission trading scheme (ETS)** works on similar principles. Industrial units in Europe have prescribed emission standards to adhere to, and they buy and sell credits based on their performance. **China**, too, has a domestic carbon market.

Carbon Market vs PAT

- ▶ **BEE scheme, called PAT, (or perform, achieve and trade)** allows units to earn efficiency certificates if they outperform the prescribed efficiency standards.
- ▶ These certificates can be sold to units who fail to attain emission reduction targets.
- ▶ BEE scheme, called PAT, (or perform, achieve and trade) allows units to earn efficiency certificates if they outperform the prescribed efficiency standards.
- ▶ Although the **details of this carbon market are not yet known**, it is likely to be on the lines of the European ETS, facilitating the buying and selling of carbon credits.

Great Barrier Reef's recovery

Relevant for GS Prelims & Mains Paper III; Environment

What are coral reefs?

- Corals are **marine invertebrates** or animals which do not possess a spine.
- **Each coral is called a polyp** and thousands of such polyps live together to form a colony, which grow when polyps multiply to make copies of themselves.
- They are the **largest living structures** on the planet.
- Corals are of **two types** — **hard corals and soft corals**. **Hard corals extract calcium carbonate from seawater to build hard, white coral exoskeletons**.
- **Soft corals attach themselves to such skeletons and older skeletons built by their ancestors. Soft corals also add their own skeletons to the hard structure over the years. These growing multiplying structures gradually form coral reefs.**

About Great Barrier Reef

- ▶ **Australia's Great Barrier Reef is the world's largest reef system stretching across 2,300 km.**
- ▶ **3,000 individual reefs**
- ▶ **Hosts 400 different types of corals**
- ▶ **Importance of Coral Reefs**
 - Coral reefs support over 25% of marine biodiversity even as they take up only 1% of the seafloor.
 - Coral reef systems generate \$2.7 trillion in annual economic value through goods and service trade and tourism.

Survey findings

- The annual long-term monitoring by **Australian Institute of Marine Science (AIMS)** of Coral Cover began 36 years ago.
- Coral cover is measured by determining the increase in the cover of hard corals.
- The new survey shows record levels of region-wide coral cover in the northern and central Great barrier Reef since the first ever AIMS survey was done.
- The report states that reef systems are resilient and capable of recovering after disturbances such as accumulated heat stress, cyclones, predatory attacks and so on, provided the frequency of such disturbances is low.
- Besides predatory attacks and tropical cyclones, scientists say that the biggest threat to the health of the reef is climate change-induced heat stress, resulting in coral bleaching.

Symbiotic Relationship

- ✓ A symbiotic relationship is a relationship in which both the species living together derive mutual benefit.
- ✓ Coral organisms share a symbiotic relationship with Zooxanthellae algae which are microscopic in nature and live in the tissues of corals.
- ✓ Zooxanthellae produce carbohydrates by photosynthesis. These carbohydrates are consumed by coral organisms.
- ✓ On the other hand, Zooxanthellae algae living in corals receive more sunlight as corals live nearer to sea surface (rather than living on the sea floor). This sunlight enables algae to carry out photosynthesis. Secondly, coral organisms provide safe environment for algae. Thirdly, coral organisms release CO₂ which is consumed by algae to carry out photosynthesis.

Coral Bleaching

- Coral organisms are naturally white in colour. They acquire different colours as a result of algae living within their tissues.
- Coral bleaching refers to the emergence of white colour or fading of colour of the corals due to the discharge of algae from their tissues.
- Coral bleaching occurs due to changes in environment of corals such as climate change.
- If algae loss is prolonged, then eventually the coral host dies. Death of corals affect marine ecosystem.

India adds 11 more wetlands to the list of Ramsar Sites



Relevance: Prelims & GS Mains Paper III; Env't.

Source: PIB

New Ramsar Sites

- India is one of the Contracting Parties to Ramsar Convention, signed in Ramsar, Iran, in 1971. India signed it on 1st Feb 1982.
- During this year itself (2022) a total of 28 sites have been declared as Ramsar sites.
- Based on the date of designation mentioned on Ramsar Certificate, the number is 19 for this year (2022) and 14 for previous year (2021).
- With the addition of 11 new sites, the total number of sites has reached to 75.
- Tamil Nadu has maximum no. of Ramsar sites (14 nos), followed by UP which has 10 nos. of Ramsar sites.

11 new sites

- 4 sites in Tamil Nadu
 - ✓ Chitrangudi Bird Sanctuary in Ramanathapuram district
 - ✓ Suchindrum Theroor Wetland complex part of Suchindrum-Theroor Manakudi Conservation Reserve
 - ✓ Vaduvur bird sanctuary
 - ✓ Kanjirankulam Bird Sanctuary
- 3 sites in Odisha
 - ✓ Tampara Lake – Freshwater lake in Ganjam district
 - ✓ Hirakud Reservoir
 - ✓ Ansupa Lake – Largest freshwater lake of Odisha in Cuttack district

India adds 11 more wetlands to the list of Ramsar Sites



Relevance: Prelims & GS Mains Paper III; Env't.

Source: PIB

11 new sites

- 2 in Jammu & Kashmir
 - ✓ Hygam Wetland, Jhelum Basin
 - ✓ Shallabug Wetland Conservation Reserve, District Srinagar
- 1 in Madhya Pradesh
 - ✓ Yashwant Sagar reservoir in Indore District
- 1 in Maharashtra
 - ✓ Thane Creek

Forever chemicals in rainwater across the globe



Relevance: Prelims & GS Mains Paper III; Environment

Source: The Indian Express

Why in news?

- A recent study has found that **rainwater from many places across the globe** is contaminated with “per- and polyfluoroalkyl substances,” (PFAs)
- They are called “**forever chemicals**” because of their **tendency to stick around in the atmosphere, rainwater and soil for long periods of time.**

What are PFAs?

- PFAs are **man-made chemicals** used to make nonstick cookware, water-repellent clothing, stain-resistant fabrics, cosmetics, firefighting forms and many other products that **resist grease, water and oil.**
- PFAs can migrate to the **soil, water and air** during their production and use.
- Since most PFAs **do not break down**, they **remain in the environment for long periods of time.**
- Some of these PFAs can **build up in people and animals** if they are **repeatedly exposed** to the chemicals.

Forever chemicals in rainwater across the globe



Relevance: Prelims & GS Mains Paper III; Environment

Source: The Indian Express

Consequences of Exposure

- Variety of Health risks
 - **Decreased fertility**
 - **Developmental effects in children**
 - Interference with **hormone system**
 - Increased **cholesterol** levels
 - Increased risks of **Cancers**
 - **Difficulty in building anti-bodies after vaccination**

INS Vikrant- set to be part of the naval fleet

Source: The Hindu



Relevance: Prelims & GS Mains Paper III; Environment

INS Vikrant

- India's **first indigenous aircraft carrier**
- Built at the **Cochin Shipyard**
- Will be part of the naval fleet as INS Vikrant, **taking on the name, the crest and pennant number (R11) of India's first aircraft carrier.**
- Project started in 2007.
- **262-metre-long ship**
- Powered by **four gas turbines** with a capacity of **88 MW**
- Speeds upto **28 knots**

Other facts

- 20,000 crore
- Can carry **30 aircrafts**
- Initially, it will be the **MiG-29K fighters and Ka-31 helicopters** that will be operating from the ship. But depending on the government's decision, INS Vikrant could get **Rafale (M) or the F-18 Super Hornet fighters.**
- 1,700 personnel under the Commanding Officer (designate) Commodore Vidhyadhar Harke



Arth Ganga

Source: The Indian Express



Relevance: Prelims & Mains Paper III; Env't

Arth Ganga

- In 2019, the PM urged the **shift from Namami Gange to Arth Ganga Programme** for cleaning the river Ganga.
- **Focus of Arth Ganga**
Sustainable development of the Ganga and its surrounding areas, by focusing on economic activities related to the river.

The Arth Ganga model **seeks to use economics to bridge people with the river.**

Namani Gange sought to incite the religious and spiritual beliefs of people to secure their participation in cleaning the Ganga river.

Activities under Arth Ganga

- Government is working on 6 verticals
- 1. **Zero Budget Natural Farming**, which involves chemical-free farming on 10 km on either side of the river, and the **promotion of cow dung as fertiliser** through the GOBARdhan scheme.
- 2. **Monetization and Reuse of Sludge & Wastewater**- Reuse treated water for irrigation, industries and **revenue generation for Urban Local Bodies (ULBs)**
- 3. **Livelihood Generation – Creating haats** where people can sell local products, medicinal plants and ayurveda.

Arth Ganga

Source: The Indian Express



Activities under Arth Ganga

4. Increase Public Participation-
Increasing synergies within the stakeholders involved with the river.

5. Cultural Heritage and Tourism-
Promote the cultural heritage and tourism of Ganga and its surroundings, through boat tourism, adventure sports and by conducting yoga activities

6. Empower local administration-
Empowering local administration for improved water governance.

Zombie ice

Source: The Indian Express



Relevance: Prelims & Mains Paper III; Environment

What is Zombie ice?

- Zombie ice is one that is **not accumulating fresh snow** even while continuing to be part of the parent ice sheet.
- Also referred to as **dead or doomed ice**
- Such ice is **"committed" to melting away and increasing sea levels.**
- Why? This is **on account of warming that has already happened.**

Predictions

- Scientists have projected that **3.3% of Greenland's total ice volume will melt, even if the global temperature is stabilized at the current level.**
- Given that **global warming is predicted to get worse**, the melting and the corresponding rise in sea level could be much worse.
- The study says it could reach as much as **30 inches (78 centimetres) if Greenland's record melt year (2012) becomes a routine phenomenon.**



PRACTICE QUESTIONS

Q. Which of the Climate Targets have been adopted as official commitments by India under Paris agreement?

1. Reduction in emissions intensity by atleast 45 per cent, from 2015 levels by 2030.
2. Atleast 50% of installed electricity should come by non-fossil sources by 2030.
3. An increase in forest cover to create an additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent

Select the correct answer using code given below:

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

Q. The ecologically sensitive Hasdeo Aranya forests are located in

- (a) South-Eastern Jharkahnd
- (b) North-Central Jharkhand
- (c) North-Central Chattisgarh
- (d) South-Central Chattisgrah

Q. Consider the following statements about Bureau of Energy Efficiency (BEE):

1. It was set up under Energy Conservation Act, 2001.
2. The star rating of appliances is an initiative of BEE.
3. BEE has a role in facilitating large scale shift to LED bulbs from incandescent bulbs.

Select the correct answer using code given below:

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

Q. Consider the following statements about Great Barrier Reef:

1. Great Barrier Reef is the largest reef structure of the world along the coast of Australia.
2. The Great Barrier Reef has shown signs of recovery as per recent reports.
3. According to recent reports, Great Barrier reefs can withstand temporary changes such as cyclones than permanent changes such as climate change.

Select the correct answer using code given below:

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

Q. Consider the following statements about India's relationship with Ramsar Convention:

1. India is one of the founding members of Ramsar Convention.
2. Among Indian States, Tamil Nadu has the highest number of sites listed under the convention.
3. As per the date of designation mentioned on Ramsar Certificate, the highest number of sites from India are listed in the year 2022.

Which of the above statements is/are correct?

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

Q. Consider the following statements about Per- and Polyfluoroalkyl substances (PFAs). Which of the following statements is incorrect?

- (a) They are man-made chemicals used to make products that resist grease, water and oil.
- (b) They are biodegradable in nature.
- (c) Their exposure leads to variety of health risks.
- (d) They can be present in rainwater.

Q. Consider the following statements about INS Vikrant:

- 1. It is the country's first indigenous aircraft carrier.
- 2. It has been built at Garden Reach workshop at Kolkata.
- 3. The official name of the aircraft carrier is Crest.

Select the correct answer using the code given below:

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

Q1. Which of the following are the correct statements about Arth Ganga?

1. It is the new approach adopted by the Government for cleaning the river Ganga.
2. The approach focusses on integration of the economic interests of various stakeholders and simultaneously attain sustainability of river Ganga.
3. One of the activities planned as part of this project to promote Yoga classes adjoining river bank.

Select the correct answer using the code given below:

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

SCIENCE
&
TECHNOLOGY

What are the pros and cons of hybrid electric vehicles? How is it different from normal EVs?

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

Why in news?

- In recent months, automakers Maruti Suzuki, Toyota and Honda have launched hybrid electric vehicles in India.
- These new hybrid electric vehicles have advantages over conventional internal combustion engine (ICE)-powered vehicles.

What is a hybrid electric vehicle?

- ▶ **Hybrid-** Can be powered by the **electric motor alone, which uses energy stored in batteries**, by the **ICE**, or both.
- ▶ HEV are designed by Three Methods:
 - **Series Design-** A series HEV **uses only the electric motor to drive the wheels**, while the **ICE powers the generator, which in turn recharges the battery**.
 - **Parallel Design-** A parallel HEV, based on the driving condition, uses the best power source to power the vehicle. It will **alternate between the electric motor and the ICE** to keep the car moving.
 - **Series-parallel (power split) Design-** A series-parallel HEV offers a **combination of both models** and allows to split power, wherein power is routed from the ICE alone or from the battery to the electric motor to drive the vehicle.

What are the pros and cons of hybrid electric vehicles? How is it different from normal EVs?

Regenerative braking system

- In all three designs, the battery is charged through **regenerative braking technology**.
- Based on the type of RBS, the **energy recovery happens in multiple ways**.
 - A **kinetic system** can **recover the energy lost during braking** and then use this energy to recharge the high-voltage battery of the vehicle.
 - An **electric system generates electricity** through a motor during sudden braking.
 - A **hydraulic system uses pressurised tanks to store the vehicle's kinetic energy** and can offer a high energy recovery rate which is ideal for heavy vehicles.
- The efficiency of HEVs and EVs will in large part be determined by their ability to recover as much energy as possible while braking.

What are the pros and cons of hybrid electric vehicles? How is it different from normal EVs?

Advantages of using hybrid technology

- **Better fuel efficiency**
- **More power**
- **Minimum emission**
- The design of hybrid vehicles for **reduced engine size and car weight** as compared to ICE vehicles, translates into increased mileage to favour the demand for these vehicles.

Challenge

- ▶ **High Cost of HEVs**
- **Battery**, a vital component of an HEV, increases the cost of the vehicle, making it pricier than vehicles powered only by an ICE.
- **RBS** also adds to the higher cost of an HEV.

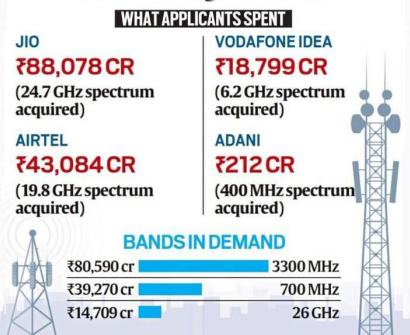
5G Spectrum auction

Relevance: Prelims & Mains Paper III; Science & Technology

Highlights

- In India, the 5G spectrum that is being auctioned include **600 MHz, 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 2500 MHz, 3300 MHz, and 26 GHz bands**. A total of 72097.85 MHz (72 GHz) of spectrum has been put to auction and as per government sources the bidding was mostly concentrated around **3300 MHz, 26 GHz and 700 MHz**.
- India's biggest ever spectrum auction ended with Rs **1,50,173** crore, higher than expected Rs. 100,000 crore
- **Reliance Jio** emerged as the largest spender in the 5G spectrum auction, acquiring almost half of all the airwaves sold for more than Rs 88,000 crore, and was also the only one (among four applicants) to have acquired spectrum in the premium **700 MHz band**.
- According to sources, the government had initially anticipated that the **700 MHz band** might not find any takers, especially since the band had gone unsold in the previous spectrum auctions in **2016 and 2021**, owing to high price compared to other bands.

5G AUCTION ENDS, GOVT GETS OVER RS 1.5 LAKH CR



5G Spectrum auction

Relevance: Prelims & Mains Paper III; Science & Technology

3300 MHZ

- The **3,300 MHz** band saw the highest amount of bids at Rs **80,590 crore**.
- The main drawback with is that wireless high-band technology **does not work well indoors**. This is because the **signals struggle to penetrate building walls and certain types of glass**, thus hobbling indoor 5G performance.

700 MHZ

- The 700MHz band is always considered as a **“premium” band** and it **sells at a higher price**. It received the second highest amount of total bids, at a value of Rs **39,270 crore**.
- The 700 MHz band helps telcos **cut costs and provide better network coverage**.
- The 700 MHz band provides **coverage for over 10 km**. This substantially **reduces the cost of adding more towers and radios** and makes the costs of rural deployment of 5G **viable** because only a few towers need to be installed to offer 5G in a remote area. Overall, its operating costs are low.
- Due to **low frequency and with the ability to penetrate buildings efficiently**, the 700MHz band makes all the more sense for telcos to provide connectivity in congested regions.

26 GHZ

- The **26 Ghz millimetre** band – which is **ideal for enterprise level 5G applications including setting up private 5G networks** – received the third highest amount of bids at Rs **14,709 crore**.

First flight of SSLV

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

Why in News?

- **First flight of Small Satellite Launch Vehicle**, India's newest addition to its rocket fleet, has been concluded after a delay of 3 years.
- The rocket **carried two satellites**, including an **earth observation micro-satellite called EOS-02**.
- The rocket flight did not go as intended. The **rocket placed “the satellites into 356 km x 76 km elliptical orbit instead of 356 km circular orbit”**.
- This less-than-perfect flight of the SSLV puts a cloud of doubt over the new rocket.

SSLV Key features

- The SSLV would have the capability to **carry satellites weighing up to 500 kg** to the **lower earth orbits (up to altitudes of 1,000 km from earth's surface)** which is one of the most sought after places in space for positioning of satellites.
- Expected to become ISRO's **main launch vehicle** in the coming years.
- Can be **assembled within 72 hours** by a **team of just 5-6 people**.
- **Costs at least one-tenth** of the those currently in use.
- Would enable a space launch from India **every week**.
- A rocket that caters specifically to the **small and micro satellites** that constitute over **90 per cent of all satellites** being launched these days.

First flight of SSLV

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

Era of Small Satellites

- Small satellites weigh between 5 and 1,000 kg.
- Earlier they were launched with a large satellite as main payload.
- Businesses, Government agencies, Universities and laboratories sending satellites- Increase in small satellites launch.

More Launches

- In a year, ISRO makes 5-6 launches with its PSLV and GSLV (Geospatial Satellite Launch Vehicles) rockets.
- These rockets typically take 70-80 days to assemble.
- Dozens of people work on the assembly
- Each of these cost tens of millions of dollars.

CSIR gets its first Woman Director General N. Kalaiselvi

About CSIR

- ▶ The Council of Scientific and Industrial Research (CSIR) was established by the Government of India in September 1942 as an autonomous body that has emerged as the largest research and development organisation in India.
- ▶ It has 38 laboratories with a collective staff of over 14,000, including a total of 4,600 scientists and 8,000 technical and support personnel.
- ▶ Although it is mainly funded by the Ministry of Science and Technology, it operates as an autonomous body through the Societies Registration Act, 1860.

N. Kalaiselvi

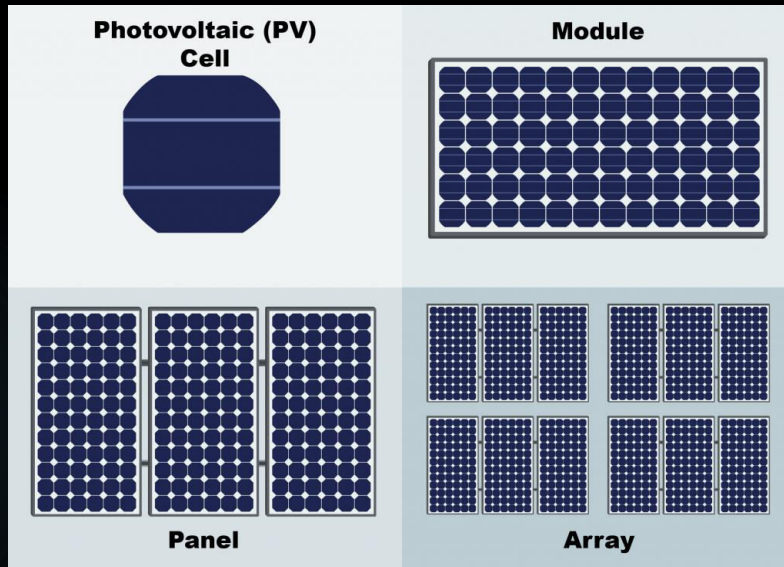
- ▶ N. Kalaiselvi is the first woman to be appointed as Director General, top-most position of CSIR.
- ▶ She has been appointed for a Term of 2 years by Appointments Committee of the Union Cabinet.
- ▶ She has been involved in projects to increase electric mobility in India and her expertise in these sectors will likely help with India's push towards increasing the number of electric vehicles.

India's solar Targets and Challenges

Relevant for GS Prelims & Mains Paper III; S&T

Numbers

- From less than 10 MW in 2010, India has added significant PV capacity over the past decade, achieving over 50 GW by 2022.
- By 2030, India is targeting about 500 GW of renewable energy deployment, out of which ~280 GW is expected from solar PV.
- This necessitates the deployment of nearly 30 GW of solar capacity every year until 2030.



India's solar Targets and Requirements

Relevant for GS Prelims & Mains Paper III; Environment

Process

- Polysilicon, a high-purity form of silicon, is a key raw material in the solar photovoltaic (PV) supply chain.
- To produce solar modules, polysilicon is melted at high temperatures to form ingots, which are then sliced into wafers and processed into solar cells and solar modules.

Challenges

- ▶ India currently imports
 - 100% of silicon wafers
 - Around 80% of cells
- ▶ Current solar module manufacturing capacity is limited to ~15 GW per year

Common charger for all devices

Source: Indian Express

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

Common Charger

The **Union Ministry of Consumer Affairs** has written to industry and other concerned stakeholders, inviting them to **brainstorm a plan** for having one cable for charging all your devices.

This idea of '**one charger for all devices**' is not new. It was **also proposed by the European Union in June**.

Reasons:

1. Due to the incompatibility of charging ports between old and new devices, consumers are forced to **buy a separate charger and cable every time they purchase a new gadget**.
2. This also adds to avoidable **e-consumption**.

ATAGS

Source: Indian Express

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

Why is news?

- In a first, an **indigenously developed howitzer gun, ATAG**, became part of the 21-gun salute during the Independence Day ceremony at the Red Fort.
- **Developed by the DRDO, the Advanced Towed Artillery Gun System (ATAGS)** was used alongside the traditional British-origin '25 Pounders' artillery guns.

The 21-gun salute tradition

- In India, **artillery gun salutes are fired on the Republic Day, the Independence Day and also at the time of oath taking ceremony of the President, among other occasions**.
- When the **National Anthem is played by the Military Band after the unfurling of the Tricolour** at the Red Fort by the Prime Minister, a 21-volley gun salute is fired.
- Over the years, this 21-gun salute was **fired by the World War era howitzers of British make known as 'Ordnance Quick Fire 25 Pounder' or just '25 Pounder'**.

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

Inclusion of ATAGS

- This year, two Advanced Towed Artillery Gun System (ATAGS) howitzers joined the battery that fired along with other 25 Pounders.
- The ATAGS is an indigenous howitzer gun developed by the Defence Research and Development Organisation (DRDO) with its Pune-based facility Armament Research and Development Establishment (ARDE) being the nodal agency.
- Howitzers is an umbrella term for a category of long-range artillery guns.
- The ATAGS project was started in 2013 by DRDO to replace older guns in service in the Indian Army with a modern artillery gun.

F-INSAS, Nipun mines, LCA – New Weapon systems

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

Source: Indian Express

Why in news?

- Made-in-India howitzer gun, the ATAGS, was used for the first time in the ceremonial 21-gun salute during the Independence Day celebrations
- Defence Minister Rajnath Singh handed over several new defence systems, including the F-INSAS, the Nipun mines, the Landing Craft Assault (LCA), to the Army.

F-INSAS system

- F-INSAS stands for Future Infantry Soldier
- Under F-INSAS, soldiers are equipped with modern warfare equipment which is lightweight, all-weather-all-terrain, cost-effective and low maintenance.
- F-INSAS system includes
 - ✓ AK-203 assault rifle, which is a Russian origin rifle but manufactured in India
 - ✓ Hand Grenade
 - ✓ Ballistic helmets and ballistic goggles – project movements of projectiles and fragments
 - ✓ Bullet proof vest
 - ✓ Communications set

F-INSAS, Nipun mines, LCA – New Weapon systems



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

F-INSAS system

- Sources from indigenous sources and Conceived in 2000s
- **Indigenously designed** by the Indian entities, including the **DRDO and the ordnance factories ecosystem.**
- All these items have been **sourced from Defence Public Sector Undertakings, and private Indian industries.**

Nipun mines

- **Indigenously designed and developed anti-personnel mines**
- Termed by the **DRDO** as 'soft target blast munition'
- Meant to act as the **first line of defence** against infiltrators and enemy
- Developed with the efforts of **Armament Research and Development Establishment, a Pune-based DRDO facility, and Indian industry.**

Landing Craft Assault

- **Landing Craft Assault (LCA)** is meant to serve as a replacement for the boats with limited capabilities currently in use in the **Pangong Tso lake.**
- The LCA has been indigenously developed by **Goa-based Aquarius ShipYard Limited**
- Have better launch, speed and capacity to operate across water obstacles in eastern Ladakh
- **Similar vessels with Indian Navy are in use**

Source: Indian Express

Heart attack while exercising



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

Why in News?

- Comedian Raju Srivastava suffered a heart attack recently while working out in a gym.
- Over the years, there have been **reports linking strenuous physical activity to sudden cardiac arrest.**

What causes a heart attack?

- Heart attacks are caused when there is a **sudden blockage in the coronary arteries supplying blood to the heart muscle.**
- **Chronic obstruction of 70 per cent or more** in a coronary artery produces angina or chest pain because blood flow to the heart is blocked.
- The **blockages** are a **result of cells and cholesterol particles breaking through the barrier of endothelial cells and infiltrating the lining of the artery.** As a result, there is a bump in the artery wall — like a pimple.
- However, a heart attack (acute myocardial infarction) can **also occur when soft plaques that form in the coronary arteries rupture and cause a large clot to form.**

Source: Indian Express

Heart attack while exercising



Why do Plaques form?

- Plaques form in the coronary arteries **due to injury caused to the blood vessel lining by factors causing inflammation.**
- **High blood pressure, smoking, diabetes, unhealthy diets, stress, inadequate sleep or recent infection** are factors that can cause such inflammation.
- **Fats circulating in blood can then deposit at the site of injury to grow the plaque.**

What causes cardiac death during exercise?

- Vigorous exercise can also cause **plaque rupture**
- It can also trigger **electrical disturbances in the heart** leading to cardiac arrest
- **Blockage in the artery** can also cause heart attack since **available blood supply does not meet the increased oxygen demand during exercise.**

Source: Indian Express

Corneas bioengineered from pig collagen can restore sight



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

Cornea Damage

- **Damage to the cornea** — the **clear, outermost layer of the eye** — is one of the **leading causes of blindness** across the world.
- Approximately **12.7 million** people blind, particularly affecting those in poorer countries where there is a scarcity of donated human corneas.
- Researchers claim that there is a **severe shortage of corneas**, with only one available for 70 patients. **Logistical and storage difficulties, along with expensive surgical equipment**, further burden those living in low- and middle-income countries in Asia, Africa, and the Middle East.

Bioengineered from pig collagen

- For the first time, researchers in **Sweden** have been able to create a successful alternative — **bioengineered cornea implants made of collagen derived from pig skin.**
- The implant was used to successfully restore the vision of **20 people** in India and Iran.
- The researchers utilized collagen derived from pig skin. Collagen is a protein found in connective tissues.
- Benefits
 - **Cheaper**
 - **Easier to access**
 - **Less invasive procedure**
 - **Stored for significantly longer period — up to two year**

Source: The Indian Express

Hayabusa-2 probe findings

Source: Indian Express



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

What is an asteroid?

- **Asteroids** are rocky objects that orbit the Sun, much smaller than planets.
- According to NASA, there are **994,383 known asteroids**, the **remnants** from the formation of the solar system over **4.6 billion years ago**.
- Asteroids are divided into **three classes**
 1. First are those found in the **main asteroid belt** between Mars and Jupiter, estimated between 1.1-1.9 million asteroids.
 2. The second group is that of **trojans**, which are asteroids that **share an orbit** with a larger planet. NASA reports the presence of Jupiter, Neptune, Mars and Earth trojans.
 3. The third classification is **Near-Earth Asteroids (NEA)**, which have orbits that pass close to the Earth. Those that cross the Earth's orbit are called **Earth-crossers**. **More than 10,000** such asteroids are known, out of which over **1,400** are classified as **potentially hazardous asteroids (PHAs)**.

Importance

- Formed along with other celestial bodies and most of them have original composition, scientists study them to look for **information about the formation and history of planets and the sun**.
- Another reason for tracking them is to look for asteroids that **could possibly crash into Earth**.
- **NASA's OSIRIS-REX mission** had **collected samples from the asteroid Bennu in October 2020, which will be brought to Earth in 2023**.

Hayabusa-2 probe findings

Source: Indian Express



Why in News?

- In an article published in the journal Nature Astronomy, scientists from Japan suggest that **water and organic materials** might have been brought to our planet from the outer edges of the solar system.
- The scientists made the hypothesis after analysing samples from **the asteroid Ryugu**, collected by the **Japan Aerospace Exploration Agency's (JAXA) Hayabusa-2 probe**, which had brought **5.4 grams of rocks and dust** from the asteroid to Earth in December 2020.

Hayabusa-2 mission

- The Hayabusa-2 mission was launched in December **2014**. The spacecraft was sent on a six-year voyage to study the asteroid Ryugu. **Ryugu** is also classified as a **PHA**. It is 300 million kilometres from Earth and it took Hayabusa-2 over 42 months to reach it.
- The spacecraft arrived at the asteroid in mid-2018 after which it deployed a **small lander and two rovers** onto the surface.
- In 2019, the spacecraft **fired an impactor** into the asteroid's surface to create an artificial crater with a diameter of a little more than 10 metres, which allowed it to collect the samples.
- In December 2020, Hayabusa-2 **delivered a small capsule** that contained the rock and dust samples when it was 220,000 km from the Earth's atmosphere, which safely landed on the earth.
- Hayabusa-2's **predecessor, the Hayabusa mission**, brought back **samples from the asteroid Itokawa in 2010**.

Hayabusa-2 probe findings

Source: Indian Express



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

Findings

- Since the capsule landed on Earth, scientists have been **studying the invaluable material — weighing merely a few grams**, but approximately 4.6 billion years old — in order to explore the foundations of the solar system.
- Their analyses of the samples have helped us **explore the origins of life on our planet**.
- In June, a group of scientists found that the materials contained **amino acids**, and suggested that these building blocks of life might have formed in space.
- The current study states that “asteroids may have been one of the main sources of **Earth's water**,” which is essential for the emergence of life.

Ethanol blending

Source: The Hindu



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

Ethanol Blending

- **Mixing of ethanol with petrol to burn less fossil fuel**
- **Sources**
 1. Mainly obtained from the Molasses, by product of sugar industry
 2. Other sources such as rice husk or maize.
- **Blending Targets**
 - Currently, **10%** of the petrol that powers your vehicle is ethanol.
 - **India's aim is to increase this ratio to 20% originally by 2030** but in 2021, when **NITI Aayog** put out the ethanol roadmap, that deadline was **advanced to 2025**.

First generation and second generation Ethanols

- **1G – Ethanol from molasses**
- **2G – Sources Other than molasses such as rice straw, wheat straw, corn cobs, corn stover, bagasse, bamboo and woody biomass.**
- Last week, **Indian Oil Corporation's (IOC) 2G ethanol plant** was inaugurated which will make **ethanol from rice stubble**.

Ethanol blending

Source: The Hindu



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

Other countries

- U.S., China, Canada and Brazil all have ethanol blending programmes.
- Brazil stands out. It has finally touched the 27% target in 2021.

Impact on auto industry

- The industry had committed to the government to make all vehicles **E20 material compliant by 2023**.
- This meant that the **petrol points, plastics, rubber, steel and other components** in vehicles would need to be compliant to **hold/store fuel that is 20% ethanol**.
- Without such a change, **rusting** is an obvious impediment.
- Sources in the auto industry state that they **prefer the use of biofuels as the next step, compared to other options such as electric vehicles (EV), hydrogen power and compressed natural gas**. This is mainly because biofuels demand the least incremental investment for manufacturers.

Ethanol blending

Source: The Hindu



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

Positive environmental impacts

- Ethanol **burns completely emitting nil carbon dioxide**.
- By using the left-over residue from rice harvests to make ethanol, **stubble burning** will also reduce.
- The **2G ethanol project** inaugurated last week will **reduce greenhouse gases equivalent to about three lakh tonnes of CO2 emissions per annum**, which is the same as replacing almost **63,000 cars annually** on our roads.

Negative impacts

- It does not reduce the emission of another key pollutant — **nitrous oxide**.
- **Inefficient land use** involved in manufacture of Ethanol. Land can be more effectively used for generating renewable power for EV batteries.
- For example, to match the annual travel distance of EVs recharged from **one hectare generating solar energy, 187 hectares of maize-derived ethanol are required**.
- The **water needed to grow crops for ethanol** is another debating point. **Sugarcane is the cheapest source of ethanol**. On average, a tonne of sugarcane can produce 100 kg of sugar and 70 litres of ethanol — meaning, a litre of ethanol from sugar requires 2,860 litres of water.

Vulnerabilities in Apple Devices



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

Source: Indian Express

Why in news?

- Apple has released **operating system updates** this week for iPhones, iPads, and Macs that look to fix two serious vulnerabilities that can potentially allow hackers to take complete control of the device.
- **Two Serious vulnerabilities**
 - Kernel Privileges to application
 - Webkit vulnerability

Kernel Privileges

- An **application** may be able to execute arbitrary code with **'kernel' privileges**.
- Kernel is the **core of the code for operating systems**. Gaining access to this could give the hacker **unrestricted control over the hardware and software of an affected device**.

WebKit Vulnerability

- **WebKit is the engine that powers Apple's Safari Internet browser and other apps**.
- WebKit bug could be exploited if a vulnerable device **accessed or processed "maliciously crafted web content [that] may lead to arbitrary code execution"**.

Vulnerabilities in Apple Devices

Source: Indian Express



Zero Day Flaws

- **Loopholes in a particular software, the existence of which even its developer is unaware of**.
- A zero-day vulnerability is detected only when an attack takes place exploiting one, or when companies discover them
- **Zero-day loopholes in WhatsApp and Apple's iMessage have been used earlier to install spyware tools. Pegasus**, the spyware developed by the Israeli company NSO Group, also used zero-day vulnerabilities.

National Automated Fingerprint Identification System



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

Source: The Indian Express

About NAFIS

- National Automated Fingerprints Identification System (NAFIS) project is a country-wide searchable database of crime- and criminal-related fingerprints. It has been inaugurated recently.
- The web-based application functions as a central information repository by consolidating fingerprint data from all states and Union Territories.
- It was Conceptualized and managed by the National Crime Records Bureau (NCRB) at the Central Fingerprint Bureau (CFPB) in New Delhi.

Unique identifier

- NAFIS assigns a unique 10-digit National Fingerprint Number (NFN) to each person arrested for a crime.
- This unique ID will be used for the person's lifetime, and different crimes registered under different FIRs will be linked to the same NFN.
- The ID's first two digits will be that of the state code in which the person arrested for a crime is registered, followed by a sequence number.
- NAFIS will "provide the much-needed unique identifier for every arrested person in the CCTNS (Crime and Criminal Tracking Network & Systems) database



What is causing Arctic warming?

Source: The Hindu



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

Why in news?

- Earlier studies have proved that the Arctic is warming two or three times faster; recent studies claim that Arctic is warming four times faster than the rest of the planet. – A phenomenon called Arctic amplification
- The warming is more concentrated in the Eurasian part of the Arctic, where the Barents Sea north of Russia and Norway is warming at an alarming rate — seven times faster than the global average.

What is Arctic amplification?

- Global warming is taking place on account of human activities and has increased the planet's average temperature by 1.1 degrees Celsius.
- While changes are witnessed across the planet, any change in the surface air temperature and the net radiation balance tend to produce larger changes at the north and south poles. This phenomenon is known as polar amplification.
- These changes are more pronounced at the northern latitudes and are known as the Arctic amplification.

What is causing Arctic warming?

Source: The Hindu



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

Causes of Arctic amplification

- **Ice albedo feedback**
Sea ice and snow have high albedo (measure of reflectivity of the surface), implying that they are capable of reflecting most of the solar radiation as opposed to water and land. In the Arctic's case, global warming is resulting in diminishing sea ice. As the sea ice melts, the Arctic Ocean will be more capable of absorbing solar radiation, thereby driving the amplification.
- **Lapse rate feedback**
The fall in the temperature of atmosphere with increase in altitude. Higher surface temperatures increase the Lapse rate. strength of Earth's greenhouse effect. A stronger lapse rate (the rate of decrease of temperature with altitude) gives rise to a stronger greenhouse effect and a warmer surface.

Causes

- **Water vapour feedback**
Increased water vapour concentration on account of high surface temperature further escalates the warming effect because water vapours have higher heat retention capacity.
- **Ocean heat transport**
Ocean currents from lower latitudes park heat in the Polar regions.

What is causing Arctic warming?

Source: The Hindu



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

Consequences

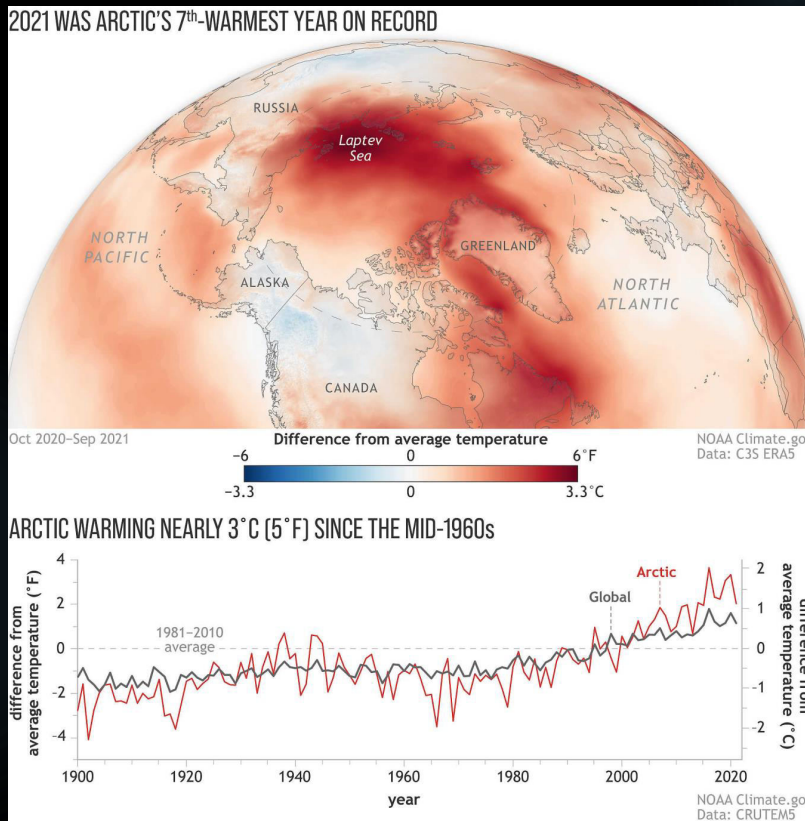
- **Cyclical**
Consequences will be causes for further global warming.
- **Melting of Greenland ice sheet**
The Greenland ice sheet is melting at an alarming rate. Greenlandic ice sheet holds the second largest amount of ice, after Antarctica, and therefore it is crucial for maintaining the sea level. In 2019, this was the single biggest cause for the rise in the sea level, about 1.5 metres. If the sheet melts completely, the sea level would rise by seven metres, capable of subsuming island countries and major coastal cities.
- **More Rainfall in Arctic- affecting biodiversity**
- **Increase in Ocean salinity**
- **Alter wind circulation**

Possible Impact on India

- In 2014, India deployed **IndARC**, India's first **moored-underwater observatory in the Kongsfjorden fjord, Svalbard**, to monitor the impact of the changes in the Arctic Ocean on the tropical processes such as the monsoons.
- **Extreme rainfall events**
- **Sea level along the Indian coast is rising faster than the global average rate.**

A fjord or fiord is a long, narrow inlet with steep sides or cliffs, created by a glacier.





OpenSea

Relevance: Prelims; Science & Technology

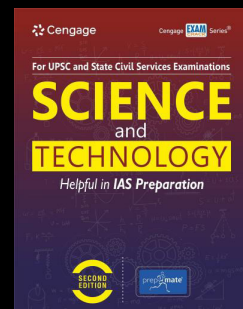
5 NON-FUNGIBLE TOKEN

Non-fungible token (NFT) is a unique unit of data stored on a digital ledger called a blockchain. The NFT is associated with a particular digital or physical asset or a license to use or copy or display the asset for a specified purpose. The unique identity and ownership of an NFT is verifiable via the blockchain ledger. NFTs (and the associated ownership of asset or license to use, copy, or display the underlying asset) can be traded and sold on digital markets such as cryptocurrency platforms.

The NFT of posters, music, films, and other forms of digital art have gained popularity. For the owner of NFTs, the NFTs represent their digital art collection. The ownership of NFTs is fool proof because it is backed by Blockchain. However, NFTs do not often grant copyright to a digital asset. Ownership of an NFT is often associated with a license to use the underlying digital asset. In fact, some agreements only grant a license for personal, non-commercial use whereas other licenses also allow commercial use of the underlying digital asset. It is to be noted that the use of NFTs is more popular with the associated digital assets than the physical assets.

Comparison with Cryptocurrency

Like cryptocurrency tokens, NFTs are also traded and recorded on blockchain. However, all units of each cryptocurrency, like bitcoin, are same and have equal value. These units can be exchanged with each other, but each NFT represents a different underlying asset and thus, has a different value. NFTs are not mutually interchangeable, hence not fungible.



OpenSea

Source: The Hindu



- Open Sea is said to be one of the largest NFT marketplaces.
- OpenSea is built on the Ethereum blockchain to trade NFTs.
- Once its value shot to \$13 billion. However, with fall in value of cryptocurrency, there is fall in sale and purchase of NFTs as well. Consequently, the value of OpenSea has fall significantly.

NASA's Artemis 1 mission

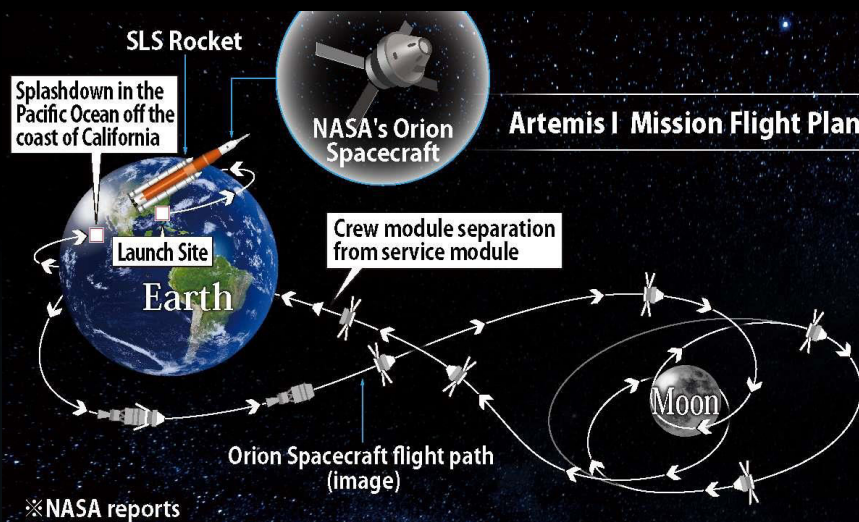
Source: Indian Express



Relevance: Prelims & Mains Paper III; S &T

Artemis 1 mission

- NASA's Artemis 1 mission is aimed at exploring the Moon with the specific objective of getting human beings back on the lunar surface and possibly beyond — to Mars and elsewhere.
- The Mission involved the launch of Spacecraft Orion.
- Would carry small satellites called cubesats, carrying instruments for investigation
- The mission was postponed on account of technical flaw.



※NASA reports

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NASA's Artemis 1 mission

Source: Indian Express



Details of Artemis 1

- It is **only a lunar Orbiter mission**. It does not even have a lander or rover component. The mission's spacecraft, called Orion, will get into a lunar orbit that would be about 97 km from the Moon's surface at its closest.
- It is **not carrying any astronauts**.
- Unlike most other Orbiter missions, Orion has a **target to return the Earth** after it has orbited the Moon for about a month.
- **Will facilitate human landings on Moon and even farther in future**

Previous landings

- It has been **50 years** since the **six Apollo human moon landings between 1969 and 1972**.
- Lot of Progress in Space technology since then, but no human missions to moon or other celestial bodies.

How different from Apollo?

- **Earlier**
 - Only thing astronauts could do was to **bring back samples from moon**
- **Now Expectations are**
 - **Extraction of resources from moon**
 - **Harness hydrogen or helium as energy resource**
 - **Construction at moon**



**PRACTICE
QUESTIONS**

Q. Regenerative Braking System in Hybrid Electric Vehicles can be based on which of the following technologies?

1. Direct use of lost Kinetic energy during braking to charge battery
2. Generation of electric energy on sudden braking
3. Use of Hydraulic system to store lost Kinetic energy

Select the correct answer using the code given below:

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

Q. Consider the following statements regarding 5G:

1. The 3,300 MHz band provides superior indoor coverage than 700 MHz because it can penetrate walls and glass.
2. 700 MHz is best suited for coverage in high-density areas.
3. The operational cost of telcos using 700 MHz is lower

Select the correct answer using the code given below:

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

Q. Consider the following statements about the new rocket, Small Satellite Launch Vehicle, developed by ISRO:

1. The rocket has the capability to carry small satellites to the geostationary orbit.
2. The rocket has fraction of cost and assembly time as compared to existing PSLV.
3. The rocket could be used to launch small and micro satellites.

Select the correct answer using code given below:

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

Q. Consider the following statements about CSIR:

1. CSIR was established under the tenure of first Prime Minister of India, Jawaharlal Nehru
2. CSIR is an autonomous body registered under Societies Registration Act, 1860.
3. CSIR receives its funding directly from Prime Ministers Office.

Select the correct answer using code given below:

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

Q. Consider the following statements about Polysilicon, key raw material to produce Solar PV cells and modules:

1. Polysilicon is an adulterated form of Silicon which is purified later on for making Solar PV cells.
2. India has ample domestic production of Polysilicon for making Solar PV cells.
3. Polysilicon is melted at high temperatures to form ingots, which are then sliced into wafers and processed into solar cells and solar modules.

Select the correct answer using code given below:

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

Q. Consider the following pairs:

Defence System : Nature

1. ATAGS – Tank
2. F-INSAS – Infantry Soldier equipment system
3. Nipun – Warfare technique
4. Landing Craft Assault - Vessel

Which of the above pairs are correctly matched?

- (a) One Pair
- (b) Two Pairs
- (c) Three Pairs
- (d) Four Pairs

Q. Recently, there have been multiple cases of heart attacks during strenuous physical exercise. Heart attacks can occur during strenuous exercise on account of the following reasons:

1. Plaque deposit rupture in the artery
2. Electrical disturbances in the heart
3. Increased blood requirements of body

Select the correct answer using the code given below:

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

Q. Consider the following Statements about Hayabusa-2 mission:

1. Hayabusa-2 mission was launched by NASA.
2. The mission collected samples from a comet.
3. The mission included spacecraft, as well as land and rover.

Select the correct answer using the code given below:

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

Q. Which of the following are Second generation sources of Ethanol?

1. Rice Straw
2. Wheat Straw
3. Bamboo
4. Sugarcane

Select the correct answer using the code given below:

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

Q. Which of the following is not an expected environmental benefit from use of 2G Ethanol sources?

- (a) Reduction in Carbon dioxide emissions from vehicles using Ethanol blended Petrol
- (b) Reduction of nitrous oxide emissions from vehicles using Ethanol blended Petrol
- (c) Reduction in Paddy Stubble burning
- (d) Increase in Cultivation of Food crops over Sugarcane to obtain Ethanol

Q. What are the Zero day vulnerabilities in the software?

- (a) Bugs incorporated into the software by hackers
- (b) Bugs existing in the software right from its development
- (c) Bugs arising in software with version updations
- (d) Bugs arising in software due to hardware issues

Q. Consider the following statements about National Automated Fingerprints Identification System (NAFIS) project:

1. It is country wide searchable database consisting of fingerprints of all the Indians.
2. NAFIS database will provide unique identifier for every arrested person in the CCTNS (Crime and Criminal Tracking Network & Systems) database.
3. NAFIS assigns a unique 10-digit National Fingerprint Number (NFN) to each fingerprint in its database.

Select the correct answer using the code given below:

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

- Q. Which of the following is the correct definition of Opensea?
- (a) It is the largest Crypto-currency exchange.
 - (b) It is the largest marketplace of digital legal lenders issued by Central banks of various countries.
 - (c) It is the most popular NFT marketplace backed n a cryptocurrency platform.
 - (d) It is the popular platform to trade cryptocurrencies.

- Q1. Consider the following statements about Artemis Missions:
- 1. One of the objectives of the missions to facilitate human beings travel to moon.
 - 2. The human beings travel to moon is being resumed after gap of 50 years.
 - 3. Artemis Missions are planned to be undertaken by NASA.
- Select the correct answer using the code given below:
- (a) 3 only
 - (b) 1, 2 and 3 only
 - (c) 1 and 3 only
 - (d) 2 and 3

Q. What is Artic amplification? What are its causes?

SOCIAL ISSUES

Making mother tongue the medium for higher studies



Relevance: Prelims & GS Mains Paper I & II

Why in news?

- Recent announcement by **Union Home Minister Amit Shah** that **engineering, law and medicine courses to be taught in Indian languages**
- **National Education Policy (NEP) 2020** also seeks **the promotion of Indian languages in higher education**.
- The NEP provides for more higher educational institutions and programmes in higher education to use the **mother tongue or local language** as a medium of instruction, besides offering programmes **bilingually**.
- **95% of students**, who **receive primary education in their mother tongue**, should not be left out in their pursuit of higher studies.

Steps taken in field of Engineering

- Effective 2021-22, the **AICTE** granted approval to 19 engineering colleges in 10 States for having **engineering courses** in six Indian languages.
- The Council has also developed an "**AICTE Translation Automation AI Tool**" that **translates English online courses in 11 Indian languages**.

Making mother tongue the medium for higher studies



Relevance: Prelims & GS Mains Paper I & II

Hurdles

- Poor Quality of teaching in State Boards
- Requirements of Profession- For instance, Courts mainly use English language for proceedings
- Inter-regional considerations
- Availability of study material and Teachers

DGCA new guidelines for transgender pilots

Source: The Hindu

Relevance: Prelims & GS Mains Paper I; Social Issues

New Guidelines

1. Candidates who have **completed their hormone therapy and gender affirmation surgery more than five years ago** will be declared medically fit.

- If transgender applicants have **completed the treatment within the past five years**, they will have to **undergo a psychological and psychiatric evaluation**.

2. Where candidates are on a **life-long hormone therapy**, they will **be considered fit if they have reached a stable dose**.

- Where an aspirant has **only recently started a hormone treatment, or has seen a change in the dose being administered**, the **person will be declared unfit for three months following which a review can be sought**.

Note : The guidelines apply for all categories of **pilot's licence — private, student and commercial pilot licence**.

Adam Harry Case

- ✓ Mr. Harry, who is the first transgender trainee pilot with a private pilot licence from South Africa, being unable to complete his training in India after the DGCA in April 2020 rejected his medical clearance.

- ✓ He was on **life-long hormone therapy and he has attained stable dose**.

- ✓ The Ministry of Social Justice and Empowerment wrote to the DGCA on July 11 calling its policy “discriminatory” and in violation of the **Transgender Persons (Protection of Rights) Act of 2019**

Attack on Salman Rushdie

Source: Indian Express

Relevance: Prelims & GS Mains Paper I; Social Issues

Why is news?

- He was **stabbed in New York at an institution as he was waiting to deliver lecture** on the importance of the US offering asylum for artistes in exile.

- The **British-Indian writer won the Booker Prize for his Midnight's Children (1981)**

- **The Booker Prize is a literary prize awarded each year for the best novel written in English and published in the United Kingdom or Ireland.**

Why he received death threats?

- He received **death threats due to his novel 'The Satanic Verses'** which was published in **September 1988**.

- **In February 1989, Iran's religious leader Ayatollah Khomeini pronounced a fatwa on Rushdie for “insulting Islam” with his novel.**

- Rushdie went into hiding following the fatwa.

- Book bans, book burnings, and death threats continued unabated for years to come.

- On its release, the book received favourable reviews in the West, winning the **1988 Whitbread Award for novel of the year** and becoming a 1988 Booker Prize finalist.

Attack on Salman Rushdie



Relevance: Prelims & GS Mains Paper I; Social Issues

Why he received death threats?

- Costa Book Awards, formerly Whitbread Book Awards (1985–2005), are series of literary awards given annually to writers resident in the United Kingdom and Ireland for books published there in the previous year. The awards are administered by the British Booksellers Association.
- In India, however, nine days after its publication, the book was banned by the Rajiv Gandhi government for hurting religious sentiments.
- The book was banned in many other countries as well.



Q. Consider the new guidelines by DGCA for transgender pilots:

1. Transgender pilots undergoing Hormone therapy will be able to secure license only if they reached the stable dose levels.
2. Candidates who have completed their hormone therapy and gender affirmation surgery more than five years ago will be declared medically fit.
3. Candidates who are on lifelong Hormone therapy will not be allowed to obtain flying license.

Select the correct answer using code given below:

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

Q. Consider the following statements about Salman Rushdie:

1. He has won the Booker Prize for his novel, the Midnight Children.
2. The Booker Prize is a literary prize awarded each year for the best novel written in any language of the world.
3. The Booker Prize is awarded to novels published in the United Kingdom or Ireland.

Which of the above statements is/are correct?

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

Q. The Higher Education Programmes are presently provided mainly in English and Hindi Medium. Do you think that there is a case to provide Higher Education Programmes in regional languages?

INTERNAL SECURITY

The dwindling fighter strength of the IAF

Relevant for GS Prelims & Mains Paper III; Internal Security

Why in news?

- In a tragic accident, a **MIG-21 trainer jet of the Indian Air Force (IAF)** crashed in Rajasthan recently killing both the pilots onboard.
- **Status of the MIG-21 jets**
- The MIG-21 was inducted into the IAF in the **early 1960s**.
- Currently, there are **four MIG-21 squadrons in service** consisting of the upgraded Bison variant.
- IAF officials have stated that there is **technical life** still left in them.
- With delays in new inductions, the IAF has been **forced to continue the last four MIG-21 Bison squadrons** in service.
- One squadron is set to be phased out in the next few months, while the remaining three squadrons are planned to be phased out in **the next three years**.

Authorised strength of airforce

- ▶ The IAF has an **authorised strength of 42 fighter squadrons**.
- ▶ In the last few years, the IAF has inducted **two squadrons of the indigenous Light Combat Aircraft (LCA) Tejas** and **two squadrons of Rafale fighter jets** procured from France which pushed the squadron strength to **32**.
- ▶ As time passes, the **drawdown is increasing as the total technical life is completed**.
- ▶ However, the **rate of new inductions is not matching** the drawdown, depleting the overall number of fighter squadrons.
- ▶ Several frontline aircraft in the inventory including the **Jaguars, MIG-29s will begin phasing out by the end of the decade**.

Q. Consider the following pairs:
Fighter aircraft – Country of origin

1. MiG - USA
2. LCA - UK
3. Rafale - France

How many pairs are correctly matched?

- (a) None Pair
- (b) One Pair
- (c) Two Pairs
- (d) Three Pairs

MISCELLANEOUS

AlphaFold: AI-based protein structure prediction tool



Relevance: Prelims

AlphaFold

- AI-based protein structure prediction tool
- DeepMind, a company owned by Google, announced that it had predicted the three-dimensional structures of more than 200 million proteins using AlphaFold.

Importance

- Proteins carry out all the functions inside a living cell. Therefore, knowing protein structure and function is essential to understanding human diseases.
- Help in designing better vaccines and drugs
- Understanding the accurate structures of COVID-19 virus proteins in days rather than years will accelerate vaccine and drug development against the virus.

Physics that makes a javelin fly past the 90m 'gold standard' distance



Why in news

- ▶ Pakistan's Arshad Nadeem gave his country its first javelin throw gold with a Commonwealth Games record mark of 90.18m.
- ▶ Nadeem has crossed the 90m barrier which India's Neeraj Chopra is yet to breach.
- ▶ Chopra, who skipped the CWG competition due to injury, has his personal best recorded at 89.94m.
- ▶ On August 7 last year, Chopra had won a javelin gold medal at the Tokyo Olympics to give India its first-ever gold in athletics.

Physics of throwing Javelin

- ▶ **Angle of throw (Attack Angle)**
High-school physics says that for maximum range, a projectile should be launched at a 45-degree angle. This rule applies only when the launch and the target are at the same height.

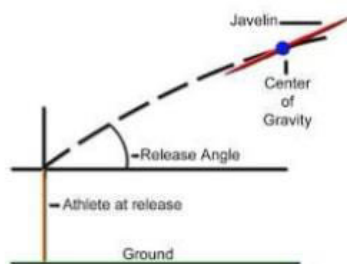
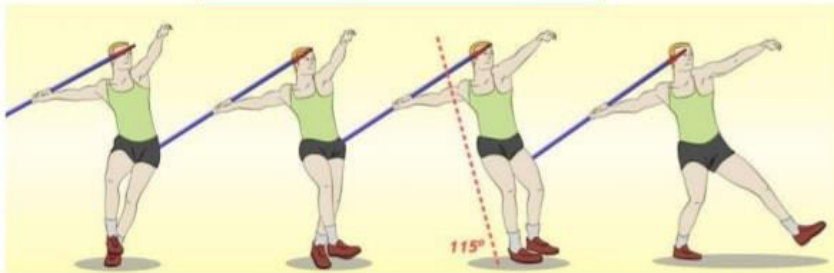
In javelin, the launch is 2m above ground and the target is at the ground and there are many aspects of aerodynamics involved. This makes the optimal angle 36-degrees.
- ▶ **Design is key**
The key concept is that the centre of gravity has to be ahead (4 cm) of the centre of pressure. This is already inbuilt in the design of a modern javelin. The shape and weight distribution of the javelin are such that the centre of gravity is ahead of the centre of pressure.

The center of gravity is near the grip and does not change during throw. "Throwing through the tip," means throwing through the grip or center of gravity. The center of pressure is the aerodynamic force of drag and lift on the javelin. The change in 1986 made javelins much easier to throw and much easier to measure because the center of pressure was moved back behind the center of gravity of the javelin.

Physics that makes a javelin fly past the 90m 'gold standard' distance



Javelin Throw Steps



The technique used to throw the javelin is dictated by IAAF rules.

Other Variables

- Angle of Thrower
- Dip all times in flight
- Tip must hit the ground first
- Run up speed of thrower
- Air density

Source: Indian Express

Butterfly Mine

Relevance: Prelims



Butterfly Mines

EXPRESS
explained.
GLOBAL



- As per intelligence assessment, **Russia** is likely to have deployed anti-personnel mines called PFM-1 series 'Butterfly Mines' to deter freedom of movement along its **defensive lines in the Donbas**.
- As per the bulletin, these mines have the potential to inflict widespread casualties amongst both the military and the local civilian population.
- PFM-1s were used to devastating effect in the **Soviet-Afghan War** where they **allegedly maimed high numbers of children who "mistook them for toys."**
- **More than 30,000 Afghans** are believed to have been victims of these mines and a large number of children were among the casualties.
- Commonly referred to as '**Butterfly mines**' or '**Green Parrots**'. These names are derived from the shape and colour of the mines.

Langya Virus

Relevance: Prelims; S&T

Why in News?

- A new **zoonotic virus** that has evolved to infect humans was identified in China in August.
- On August 4, the New England Journal of Medicine (NEJM) described the virus called Langya (LayV), reported in patients in **Eastern China**.

Detection of Langya Virus

- The **pathogen belongs to the henipavirus family, closely associated with Nipah and Hendra viruses**, and was noticed to cause fever, and respiratory symptoms among 35 people in China since 2018.
- The virus was named after the town this patient lived in — **Langya in the Shandong province in China**.
- Symptoms
 - ✓ Thrombocytopenia or low platelet count
 - ✓ Leukopenia or a low white blood cell count

Mandala Art

Source: The Indian Express

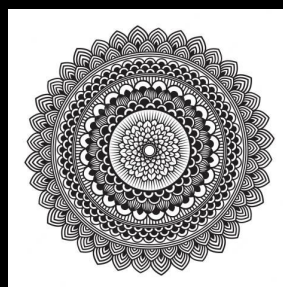
Relevance: Prelims

Why in news?

- Residents of Liverpool, UK has created a mandala art. The size of this art is one and a half football pitches in length.
- It is created with materials such as **leaves and rocks**.

What is Mandala art?

- In the **ancient Sanskrit language of Hinduism and Buddhism**, mandala means “circle.”
- It can **also be created in the shape of a square**, a mandala pattern is essentially **interconnected**.
- Traditionally, a mandala is a geometric design or pattern that **represents the cosmos or deities** in various heavenly worlds.
- It is believed that by **entering the mandala and moving towards its center**, one is guided through the cosmic process of transforming the universe from one of suffering to that of joy.



Kerala Savari

Source: The Indian Express



Relevance: Prelims

What is it?

- Application to **avail taxi services**

Who has launched it?

- **Kerala State government**

What is Special about it?

- First Online taxi service by a **State government**

Tomato flu

Source: The Indian Express



Relevance: Prelims

What is Tomato flu?

- **Tomato flu or Tomato fever** is usually seen in **children below the age of five years**
- Main Symptoms
 1. Fever
 2. **Joint pain**
 3. **Tomato-like rashes**
- Secondary Symptoms- Other symptoms of viral fevers
 1. Diarrhea
 2. Dehydration
 3. Nausea and vomiting
 4. Fatigue

Nature of Tomato flu

- 2 possibilities
 1. **New variant of hand-foot-and mouth disease (HFMD)** caused by **enteroviruses** like **Coxsackievirus A-6 and A-16**
 2. Tomato flu could be an **after-effect of chikungunya or dengue** fever in children rather than a viral infection.

Tomato flu

Source: The Indian Express



Treatment

- No specific treatment
- Isolation recommended for 7 days after the onset of symptoms

Amrita Hospital

Relevance: Prelims



What is it?

- Inaugurated by PM in Faridabad, Haryana
- 2600 beds
- Owned and managed by Mata Amritanandamayi Math headed by Mata Amritanandamayi
- Estimated cost of Rs 6000 crore
- Solar powered

Kochi Amrita Hospital

- Inaugurated in 1998 by PM Atal Bihari Vajpayee
- Kochi Amrita Hospital is claimed to Asia's biggest private super-speciality hospital

Mata Amritanandamayi

- Lives in Kochi, Kerala
- Hugging Saint
- Charitable works



1MDB scandal

Relevance: Prelims



About the scandal

- 1MDB was a **state-owned company** co-founded by former Malaysian Prime Minister Najib Razak in **2009** purported to promote development.
- Full form - **1Malaysia Development Berhad**; Berhad is a Malay term indicating a public limited company.
- 1MDB was established to **drive strategic initiatives for long-term economic development for the country by forging global partnerships and promoting foreign direct investment.**
- 1MDB signed ventures with companies like **PetroSaudi** and was also funded by investment company **Goldman Sachs** in deals worth billions of dollars.
- **Funds** from 1MDB accounts were **transferred to Najib's personal accounts.**
- 1MDB is **now insolvent.**
- Malaysia's top court upheld the conviction and 12-year prison sentence awarded



PRACTICE
QUESTIONS

Q. What is AlphaFold?

- (a) A Malware to shut down computer systems
- (b) An AI based tool to predict protein structures
- (c) A new open source operating system
- (d) A global group of hackers

Q. Consider the following statements about physics involving Javelin throw:

1. The angle of Javelin throw is less than the standard angle of 45 degrees used in launch of Projectiles.
2. The launch of Javelin is from a lower height than the target of the Javelin.
3. In the design of Javelin, the centre of gravity has to be ahead (4 cm) of the centre of pressure.

Select the correct answer using code given below:

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

Butterfly Mines

Q. 'Butterfly Mines' have been in news. What are they?

- (a) A mine on the moon which can fulfill the shortage of rare earth minerals on earth
- (b) Collection of mines which in Russia whose nature of mineral deposits is not known to the outside world
- (c) A Military weapon which particularly targets the children of the region
- (d) The techniques to mine cryptocurrency using supercomputers.

Q. Consider the following statements about Langya Virus:

- 1. The virus has originated in Western Africa.
- 2. The virus has zoonotic origin.
- 3. The virus belongs to the Henipavirus family.

Which of the above statements is/are correct?

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

Q. Which of the following statements about Mandala art is incorrect?

- (a) This form of art involves drawing of interconnected geometrical patterns.
- (b) The art has relevance in Ancient Indian Philosophy and is linked to traditional beliefs.
- (c) The Mandala paintings can be drawn only in circular patterns, and not in any other geometrical shape such as squares.
- (d) Mandala art has its origins in both Ancient Hinduism and Buddhism.

Q. Which of the following is the possible nature of Tomato fever found recently among many children?

- 1. It is a variant of hand-foot-and mouth disease (HFMD).
- 2. It is the affect effect of Covid-19 infection in Children.
- 3. It is the after effect of Dengue infection in Children.
- 4. It is possibly caused by enteroviruses.

Select the correct answer using the code given below:

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

GEOGRAPHY

Shortest day since 1960s

Relevance: Prelims & GS Mains Paper I

Why in News?

- On **June 29**, the Earth completed one full spin — a day — in **1.59 milliseconds less** than its routine 24 hours. (A **millisecond is one-thousandth of a second**).
- It was the shortest day recorded since the **1960s**, when scientists first began to use the precise atomic clocks to measure the Earth's rotational speed.
- This is not the single such event. There have **been many such events**. For instance, in 2020, the Earth recorded 28 shorter days. However, Earth is not rotating faster on sustained basis.

Trend over long time

- While the Earth has been completing its rotations faster in recent years, when looked at over a much longer period of time, our planet is **actually spinning slower**.
 - * Every century, the Earth takes a few milliseconds longer to complete one rotation — and on average, days are actually getting longer.
 - * So, **1.4 billion years ago**, a day would have ended in **less than 19 hours**. The reason behind the Earth's slower spin is attributed to the **gravitational pull of the Moon, which causes tidal friction and slows down the Earth's rotations**.

Shortest day since 1960s

Reason for shorter days

- Scientists are not sure. There are **many reasons** which have been hypothesized.
- 1. **Surface changes on account of climate change – Melting of ice and changes in ocean circulation.**
- 2. **Increase in molten core-Activities that push mass towards the centre of the Earth will hasten the planet's rotation, while anything that pushes mass outwards will slow down the spin.**

Q. Consider the following statements about the rotation of the Earth:

1. The speed of rotation of the Earth determines the length of the day.
2. Over a time period of billion years, the speed of rotation of Earth has slowed down.
3. In the last decade or so, the speed of rotation of Earth has decreased by a constant fraction.

Select the correct answer using code given below:

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

HISTORY

Women Heroes mentioned in PM Independence Day Speech

Relevance: Prelims & GS Mains Paper I; History

Rani Laxmibai

- The **queen** of the princely state of **Jhansi**
- Known for her role in the **revolt of 1857**
- Born **Manikarnika Tambe** in **1835**, she **married the king of Jhansi**.
- The couple adopted a son before the **king's death**, which the **British East India Company** refused to accept as the legal heir and **decided to annex Jhansi**.
- Refusing to cede her territory, **the queen decided to rule on behalf of the heir**, and later joined the uprising against the British in 1857.
- Cornered by the British, she **escaped from Jhansi fort**.
- She was **wounded in combat near Gwalior's Phool Bagh**, where she later died.
- , is known to have **Sir Hugh Rose, who was commanding the British army** described her as "**personable, clever...and one of the most dangerous Indian leaders**".

Jhalkari Bai

- A **soldier in Rani Laxmibai's women's army, Durga Dal**.
- She rose to become **one of the queen's most trusted advisers**.
- She is **known for putting her own life at risk to keep the queen out of harm's way**.
- Till date, the **story of her valour is recalled by the people of Bundelkhand**.
- Many Dalit communities of the region look up to her as an **incarnation of God** and also celebrate **Jhalkaribai Jayanti** every year in her honour.

Source:
Indian Express

Women Heroes mentioned in PM Independence Day Speech



Relevance: Prelims & GS Mains Paper I; History

Durga Bhabhi

- **Durgawati Devi**, who was popularly known as **Durga Bhabhi**, was a revolutionary who joined the armed struggle against colonial rule.
- A member of the **Naujawan Bharat Sabha**, she **helped Bhagat Singh escape in disguise from Lahore after the 1928 killing of British police officer John P Saunders**. During the train journey that followed, **Durgawati and Bhagat Singh posed as a couple, and Rajguru as their servant**.
- **As revenge for the hanging of Bhagat Singh, Rajguru, and Sukhdev, she made an unsuccessful attempt to kill the former Punjab Governor, Lord Hailey**.
- **Born in Allahabad in 1907 and married to Hindustan Socialist Republican Association (HSRA) member Bhagwati Charan Vohra, Durgawati, along with other revolutionaries, also ran a bomb factory in Delhi**.

Rani Gaidinliu

- **Born in 1915 in present-day Manipur, Rani Gaidinliu was a Naga spiritual and political leader who fought the British**.
- **She joined the Heraka religious movement which later became a movement to drive out the British**.
- **She rebelled against the Empire, and refused to pay taxes, asking people to do the same**.
- **The British launched a manhunt, but she evaded arrest, moving from village to village**.
- **Gaidinliu was finally arrested in 1932 when she was just 16, and later sentenced for life**.
- **She was released in 1947**.
- **Prime Minister Jawaharlal Nehru described Gaidinliu as the "daughter of the hills", and gave her the title of 'Rani' for her courage**.

Source:
Indian Express

Women Heroes mentioned in PM Independence Day Speech



Relevance: Prelims & GS Mains Paper I; History

Rani Chennamma

- **The queen of Kittur, Rani Chennamma, was among the first rulers to lead an armed rebellion against British rule**.
- **Kittur was a princely state in present-day Karnataka**.
- **She fought back against the attempt to control her dominion in 1824 after the death of her young son. She had lost her husband, Raja Mallasarja, in 1816**.
- **She is seen among the few rulers of the time who understood the colonial designs of the British**.
- **Rani Chennamma defeated the British in her first revolt, but was captured and imprisoned during the second assault by the East India Company**.

Begum Hazrat Mahal

- **Her husband, Nawab of Awadh Wajid Ali Shah, was exiled after the 1857 revolt**.
- **Begum Hazrat Mahal, along with her supporters, took on the British and wrested control of Lucknow**.
- **She was compelled to hide in Nepal after the colonial rulers recaptured the area**.

Source:
Indian Express

Women Heroes mentioned in PM Independence Day Speech



Relevance: Prelims & GS Mains Paper I; History

Velu Nachiyar

- Born in Ramanathapuram in 1780, she was married to the king of Sivagangai.
- Sivagangai was a princely state in present-day Tamil Nadu.
- After her husband was killed in battle with the East India Company, she entered the conflict, and won with support of neighbouring kings.
- Thus, many years before the revolt of 1857, Velu Nachiyar waged a war against the British and emerged victorious.
- She went on to produce the first human bomb as well as establish the first army of trained women soldiers in the late 1700s.
- Her army commander Kuyili is believed to have set herself ablaze and walked into a British ammunition dump.
- She was succeeded by her daughter in 1790, and died a few years later in 1796.

Source:
Indian Express



- Q. Consider the following statements about Durgawati Devi:
1. She was member of the Naujawan Bharat Sabha.
 2. In order to take revenge for the hanging of Bhagat Singh, Rajguru, and Sukhdev, she made an unsuccessful attempt to kill the former Punjab Governor, Lord Hailey.
 3. She was married to Hindustan Socialist Republican Association (HSRA) member Bhagwati Charan Vohra.
- Which of the above statements is/are correct?
- (a) 2 only
 - (b) 1 and 2 only
 - (c) 2 and 3 only
 - (d) 1, 2 and 3

Pandurang Khankhoje

Source: Indian Express



Relevance: Prelims & GS Mains Paper I; Modern History

Why in news?

- **Lok Sabha Speaker Om Birla**, who is currently in Canada for the 65th Commonwealth Parliamentary Conference, will **travel to Mexico** where he will **unveil statues of Swami Vivekananda and Maharashtra-born freedom fighter and agriculturalist Pandurang Khankhoje (1883-1967)**.
- Khankhoje had a **close connection with Mexico**, the country in which he sought refuge due to his association with the radical **pro-Indian independence Ghadar Party**.
- The Speaker's visit is part of the government's efforts to honour lesser-known Indian-origin leaders outside India.
- From Mexico, Birla will travel to **Suriname** on the northern coast of South America, where he will hold discussions with the **country's Indian-origin President, Chandrikapersad Santokhi**.

Pandurang Khankhoje

- **Born in Wardha, Maharashtra, in the late 19th century**
- **Went to Japan** on advice of Tilak
- From there, he **moved to the US**
- He **enrolled in college as a student of agriculture**.
- But a year later, he **joined the Mount Tamalpais Military Academy in California**
- Khankhoje was one of the **founding members of the Ghadar Party**, established by Indians living abroad in **1914**, mostly belonging to Punjab.
- Its aim was to lead a revolutionary fight against the British in India.



Pandurang Khankhoje

Source: Indian Express



Relevance: Prelims & GS Mains Paper I; Modern History

How did Khankhoje reach Mexico?

- **At the military academy, Khankhoje met many people from Mexico. The Mexican Revolution of 1910** had led to the overthrow of the dictatorial regime, and this inspired Khankhoje.
- He also **reached out to Indians working on farms in the US. Militant action was planned by Khankhoje in India, but the outbreak of the First World War halted these plans.**
- He then **reached out to Bhikaji Cama in Paris, and met with Vladimir Lenin in Russia** among other leaders, seeking support for the Indian cause.
- However, as he was **facing possible deportation from Europe** and could not go to India, he **sought shelter in Mexico**.

Career as scientist

- He was appointed a **professor at the National School of Agriculture in Chapingo, near Mexico City**.
- He **researched corn, wheat, pulses and rubber, developing frost and drought-resistant varieties, and was part of efforts to bring in the Green Revolution in Mexico.**
- Later on, the **American agronomist Dr Norman Borlaug, called the Father of the Green Revolution in India, brought the Mexican wheat variety to Punjab.**
- Khankhoje is revered as an **agricultural scientist in Mexico**.

Q. Consider the following statements about Pandurang Khankhoje:

1. He was born in Wardha region of Maharashtra.
2. He was one of the founding members of Ghadar Party based in the US.
3. He was part of the Green revolution research in Mexico.

Select the correct answer using the code given below:

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