OFFICERS' PULSE

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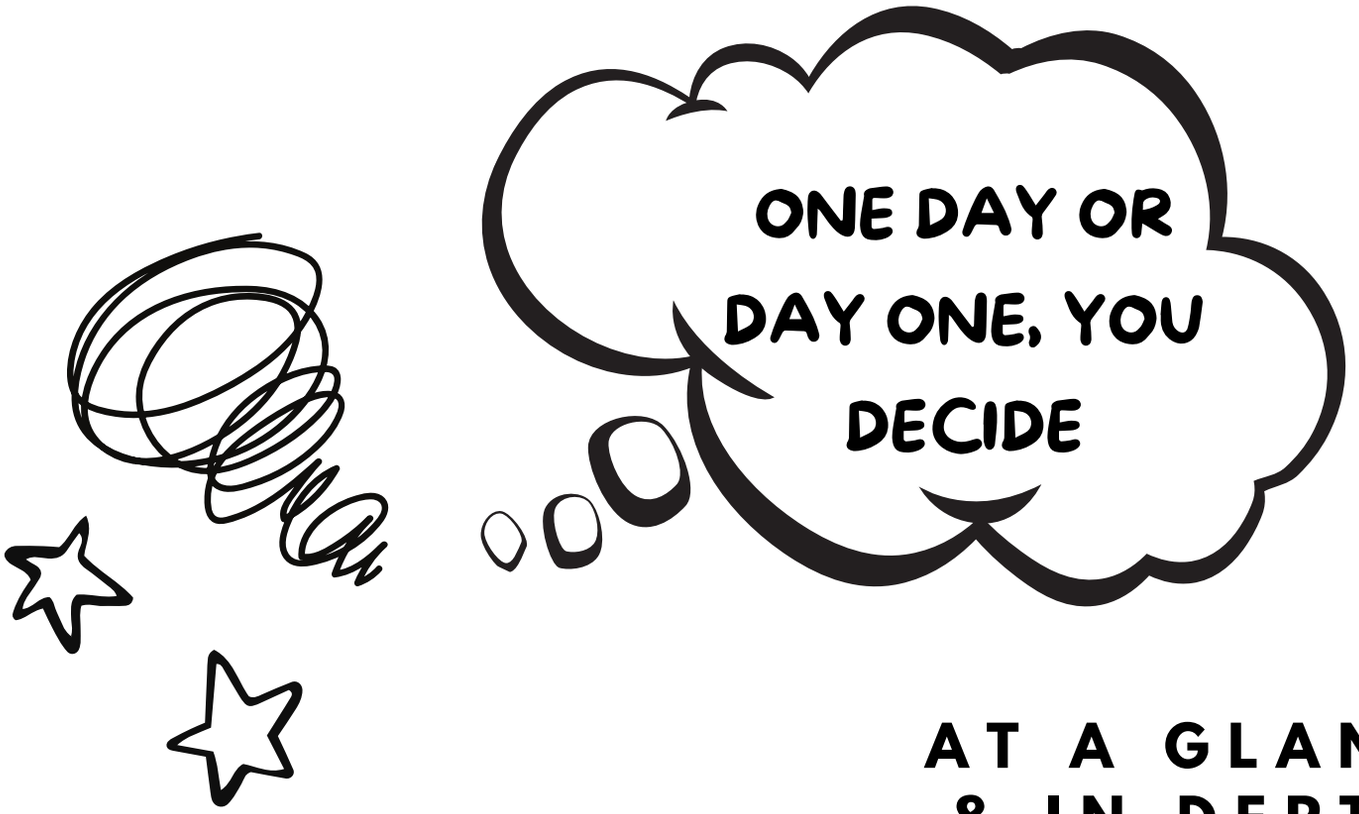

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POLITY

1) The National Land Monetisation Corporation

Context

- The Union Cabinet has approved the creation of the National Land Monetisation Corporation (NLMC), the Special Purpose Vehicle (SPV) that Finance Minister Nirmala Sitharaman had announced in the Union Budget 2021-22, to **carry out monetisation of government and surplus land holdings of public sector undertakings (PSU).**

What is the NLMC and what will it do?

- The National Land Monetisation Corporation will be a firm, **fully owned by the government,** to **carry out the monetisation of government and public sector assets in the form of surplus, unused or underused land assets.**
- It will fall under the **administrative jurisdiction of the Ministry of Finance** and will be set up with an initial authorised share capital of ₹5,000 crore and a paid-up capital of ₹150 crore.
- Apart from monetising underutilised or unused land parcels of Central Public Sector Enterprises (CPSEs), the Corporation will also facilitate the monetisation of assets belonging to PSUs that have ceased operations or are in line for a strategic disinvestment, with the aim of unlocking the value of these land holdings.
- The surplus land and building assets of such enterprises are expected to be transferred to the NLMC, which will then **hold, manage and monetise them.**
- The setting of the NLMC will speed up the closure process of the CPSEs and smoothen the strategic disinvestment process.
- It will also enable productive utilisation of these under-utilised assets by setting in motion private sector investments, new economic activities such as industrialisation, boosting the local economy by generating employment and generating financial resources for potential economic and social infrastructure.
- Besides managing and monetising, the NLMC will act as an **advisory body and support other government entities and CPSEs** in identifying their surplus non-core assets and monetising them in an efficient and professional manner, maximising the scope of value realisation.

What does monetisation mean?

- When the government monetises its assets, it essentially means that it is **transferring the revenue rights of the asset (could be idle land, infrastructure, PSU) to a private player for a specified period of time.**
- In such a transaction, the government gets in return an upfront payment from the private entity, regular share of the revenue generated from the asset, a promise of steady investment into the asset, and the title rights to the monetised asset.
- There are multiple ways to monetise government assets; in the case of land monetisation of certain spaces like offices, it can be done through a **Real Estate Investment Trust (REIT) —** a company that owns and operates a

land asset and sometimes, funds income-producing real estate. Assets of the government can also be monetised through the **Public Private Partnerships (PPP) model.**

- There are different reasons why the government monetises its assets. One of them is to create **new sources of revenue.** The economy has already been hit due to the coronavirus pandemic and revenues are essential to fulfil the government's target of achieving a **$5 trillion economy.**
- Monetisation is also done to **unlock the potential of unused or underused assets** by involving institutional investors or private players.
- Thirdly, it is also done to **generate resources or capital for future asset creation,** such as using the money generated from monetisation to create new infrastructure projects.

How will the NLMC function?

- The firm will hire **professionals from the private sector** with a merit based approach, similar to other specialised government companies like the National investment and infrastructure Fund (NIIF) and Invest India. This is because asset monetisation of real estate **requires expertise** in valuation of property, market research, investment banking, land management, legal diligence and other related skill sets.
- The NLMC will undertake monetisation as an agency function and is expected to act as a directory of best practices in land monetisation.

What are the possible challenges for NLMC?

- The performance and productivity of the NLMC will also **depend on the government's performance on its disinvestment targets.** In FY 2021-22, the government has just been able to raise ₹12,423.67 crore so far through various forms of disinvestment.
- Besides, the process of asset monetisation does not end when the government transfers revenue rights to private players, **identifying profitable revenue streams** for the monetised land assets, **ensuring adequate investment** by the private player and **setting up a dispute-resolution mechanism** are also important tasks.
- Posing as another potential challenge would be the use of Public Private Partnerships (PPPs) as a monetisation model.

2) Export Preparedness Index 2021

About EPI

- Export Preparedness Index is prepared by the **NITI Aayog** in partnership with the Institute of Competitiveness (a research institute in Haryana).
- The report examines export preparedness and performance of Indian states. EPI also intends to identify challenges and opportunities; enhance the effectiveness of government policies; and encourage a facilitative regulatory framework.
- The structure of the EPI includes **4 pillars**: **Policy; Business Ecosystem; Export Ecosystem; Export Performance**. The rationale behind selection of each of them are given below:
    - **Policy:** A comprehensive trade policy provides a strategic direction for exports and imports.
    - **Business Ecosystem**: An efficient business ecosystem can help states attract investments and create an enabling infrastructure for individuals to initiate start-ups.
    - **Export Ecosystem:** This pillar aims to assess the business environment, which is specific to exports.
    - **Export Performance:** This is the only output-based pillar and examines the reach of export footprints of States and Union Territories.
- The index also took into consideration **11 sub-pillars** -- export promotion policy; institutional framework; business environment; infrastructure;

transport connectivity; access to finance; export infrastructure; trade support; R&D infrastructure; export diversification; and growth orientation.

Why in News?

- NITI Aayog has released its Export Preparedness Index for 2021.

Highlights of the Index

- **Gujarat** has been named India's top State in terms of export preparedness for the second year in a row.
- **Maharashtra, Karnataka, Tamil Nadu** were ranked second, third and fourth in the index, as coastal States with higher industrial activity and access to sea ports account for a majority of India's exports.
- **Haryana, Uttar Pradesh and Madhya Pradesh** have been ranked fifth, sixth and seventh in the overall index, but are the **top three performers in export preparedness among land-locked States.**
- **Uttarakhand, Himachal Pradesh and Tripura** have been ranked as the **top three Himalayan States** in export preparedness, while **Delhi, Goa and Jammu & Kashmir** have been rated the best performers in descending order in the **'Union Territories and City States' category.**
- The index identifies **three major challenges** to India's export promotion efforts. These are:
    - intra- and inter-regional differences in export infrastructure;
    - weak trade support and growth orientation across States; and
    - lack of R&D infrastructure to promote complex and unique exports.

3) Framework for geo-tagging of payment system operators

What's in the news?

- The Reserve Bank of India (RBI) has released a framework for geo-tagging of payment system touch points, issuing instructions to bank and non bank payment system operators to maintain and submit to it the geographical locations of their touch points on a regular basis.
- The framework is part of the central bank's focus for deepening digital payments and providing inclusive access to all citizens of the country.

News in Detail

- Geo-tagging refers to **capturing the geographical coordinates (latitude and longitude) of payment touchpoints deployed by merchants to receive payments from their customers.**
- Geo-tagging of payment system touch points will enable **proper monitoring of availability of payment acceptance infrastructure** like Points of Sale (PoS) terminals, Quick Response (QR) codes. Such monitoring will support policy intervention to optimise distribution of payment infrastructure.
- It has various benefits, such as, providing insights on regional penetration of digital payments; monitoring infrastructure density across different locations; identifying scope for deploying additional payment touch points; and facilitating focused digital literacy programmes.

ENVIRONMENT

1) Asiatic v/s African Cheetah

Asiatic Cheetah

- Asiatic cheetah is classified as a **"critically endangered"** species by the IUCN Red List, and is believed to survive only in **Iran.**
- Asiatic cheetahs were once widespread across India but were eradicated in the country as they were hunted for sport.
- Historically, Asiatic cheetahs had a very wide distribution in India. There are authentic reports of their occurrence from as far **north as Punjab to Tirunelveli district in southern Tamil Nadu, from Gujarat and Rajasthan in the west to Bengal in the east.**
- The cheetah's habitat was also diverse, favoring the more open habitats: **scrub forests, dry grasslands, savannas and other arid and semi-arid open habitats.**
- In 1952, Asiatic cheetah was **declared extinct** from India, after decades of human intervention, hunting and habitat degradation.
- In Iran, the last surviving population of wild Asiatic cheetahs are found in **hilly terrain, foothills and rocky valleys within a desert ecosystem**, spread across seven provinces of Yazd, Semnan, Esfahan, North Khorasan, South Khorasan, Khorasan Razavi and Kerman.
- The current estimate of the population of wild Asiatic cheetahs is about 40 with 12 identified adult animals.
- It is recorded that the last cheetahs were shot in India in 1947, but there are credible reports of sightings of the cat till about 1967.
- Asiatic cheetahs are almost identical in appearance to their better known African cousins. However, there are subtle differences.
    - The Asiatic cheetah is slightly smaller and paler than its African cousin.

African Cheetah

- The African cheetah is spread out across Africa from Northwest Africa, East Africa, and Southern Africa. With a bigger territory, the African cheetahs have higher populations compared to Asiatic cheetahs.
- They are categorized as **Vulnerable** in the IUCN Red List.

Conservation efforts

- The Government of India decided to **reintroduce cheetahs, under the 'Action Plan for Introduction of Cheetah in India'.**
- Project Cheetah aims to bring back independent **India's only extinct large and fastest mammal – the cheetah.** As part of the project, 50 cheetahs will be introduced in various National Parks over five years."
- The stated goal is to establish viable cheetah metapopulation in India that allows the cheetah to perform its **functional role as a top predator** and to provide space for the expansion of the cheetah within its historical range thereby contributing to its global conservation efforts.
- **Madhya Pradesh's Kuno National Park** is all set to reintroduce African Cheetahs as part of India's first **inter-country big cat relocation project.** The cheetahs will be donated by Endangered Wildlife Trust (EWT) of South Africa.

Why do conservationists want to reintroduce cheetahs?

- A section of conservationists has long advocated the reintroduction of the species in the country.
- They argue that introductions of large carnivores have increasingly been recognised as a **strategy to conserve threatened species and restore ecosystem functions.**
- The cheetah is the only large carnivore that has been extirpated, mainly by over-hunting in India in historical times. India now has the **economic ability** to consider restoring its lost natural heritage for ethical as well as ecological reasons.

Complexities in introducing African Cheetahs in India

- According to some experts, it was more important to **conserve species that were still extant such as the lion and tiger,** rather than trying to re-establish an extinct species that had **little chance of surviving** in a greatly transformed country.
- African cheetahs are not required to perform the role of the top predator in these habitats when the site (Kuno) that they have identified already has a **resident population of leopards, transient tigers and is also the site for the translocation of Asiatic lions** as ordered by the Supreme Court of India in 2013.
- One of the goals is to enhance India's capacity to sequester carbon through ecosystem restoration activities in cheetah conservation areas and thereby contribute towards the global climate change mitigation goals. Experts contend that this objective does not require the introduction of African cheetahs, at a cost of ₹40 crore, with the **attendant risks of diseases** which haven't really been dealt with.
- The **lack of extensive areas** extending in hundreds if not thousands of square kilometers with sufficient density of suitable prey, it is very unlikely that African cheetahs would ever establish themselves in India as a truly wild and self-perpetuating population.
- A major consequence of the project will be the **diversion of scarce conservation resources**, distraction from the real conservation priorities and a further delay in the translocation of lions to Kuno.

2) World Air Quality Report

About the Report

- The World Air Quality Report is prepared by **Swiss organization IQAir.**
- The report is based on **PM2.5 air quality data from 6,475 cities in 117 countries**, regions and territories around the world.
- IQAir endeavors to engage, educate, and inspire governments, researchers, NGOs, companies, and citizens to work together to improve air quality and create healthier communities and cities.

Why in news?

- The **World Air Quality Report 2021** was recently released giving an overview about the Global state of Air Quality in 2021.

Key Findings

- **No country met the latest WHO air quality guideline for PM2.5 in 2021.**
  - The WHO recommends that average annual readings of small and hazardous airborne particles known as **PM2.5 should be no more than 5 micrograms per cubic metre** after changing its guidelines last year, saying that even low concentrations caused significant health risks.
- Only the territories of **New Caledonia, U.S. Virgin Islands and Puerto Rico** met updated WHO PM2.5 air quality guidelines.
- Only **222 out of 6,475 global cities** covered in the report met the updated WHO PM2.5 guideline.
- **93 cities** in the report had annual PM2.5 concentrations exceeding 10 times the WHO PM2.5 guideline.
- **China,** which has been waging war on pollution since 2014, fell to **22nd in the PM2.5 rankings in 2021**, down

from 14th place a year earlier, with average readings improving slightly over the year to 32.6 micrograms.
- Hotan in the northwestern region of Xinjiang was China's worst-performing city, with average PM2.5 readings of more than 100 micrograms, largely caused by sandstorms.
- **Central and South Asia had some of the world's worst air quality in 2021** and was home to 46 of the world's 50 most polluted cities.
- **The top five most polluted countries in 2021 were:**
    - Bangladesh
    - Chad
    - Pakistan
    - Tajikistan
    - India

Indian Scenario

- **New Delhi (India) is the world's most polluted capital city** for the fourth consecutive year followed by Dhaka (Bangladesh), N'Djamena (Chad), Dushanbe (Tajikistan) and Muscat (Oman).
- The report added that **35 of the 50 cities with the worst air quality were in India** with **Rajasthan's Bhiwadi topping the list** followed closely by Uttar Pradesh's Ghaziabad.
- **None of the cities in India** met the prescribed World Health Organization (WHO) air quality standards of 5 micrograms per cubic meter.
- India's annual average **PM2.5 levels reached 58.1 µg/m3 in 2021**, ending a three-year trend of improving air quality
- The report also revealed that **48 per cent of Indian cities exceeded 50 µg/m3 air quality level** which is well over 10 times the WHO guidelines.

Rank	City	2021
1	Bhiwadi, India	106.2
2	Ghaziabad, India	102
3	Hotan, China	101.5
4	Delhi, India	96.4
5	Jaunpur, India	95.3
6	Faisalabad, Pakistan	94.2
7	Noida, India	91.4
8	Bahawalpur, Pakistan	91
9	Peshawar, Pakistan	89.6
10	Bagpat, India	89.1

Rank	City	2021
11	Hisar, India	89
12	Faridabad, India	88.9
13	Greater Noida, India	87.5
14	Rohtak, India	86.9
15	Lahore, Pakistan	86.5
16	Lucknow, India	86
17	Jind, India	84.1
18	Gurugram, India	83.4
19	Kashgar, China	83.2
20	Kanpur, India	83.2

Why is air pollution a cause for concern?

- According to the report's executive summary, air pollution is now considered to be the **world's largest environmental health threat,** accounting for **seven million deaths** around the world every year.
- Air pollution causes and aggravates many diseases, ranging from **asthma to cancer, lung illnesses and heart disease.**
- The estimated daily economic cost of air pollution has been figured at **$8 billion (USD), or 3 to 4 percent of the gross world product.**

- The report noted that In India, major sources of air pollution include **vehicular emissions, power generation, industrial waste, biomass combustion for cooking, the construction sector, and episodic events like crop burning.**

3) Swachh Bharat Mission comes up short of its second phase targets

About Swachh Bharat Mission

- Swachh Bharat Mission (SBM), launched on 2nd October 2014, is a massive mass movement that seeks to create a Clean India by October 2, 2019 (150th birth anniversary of Mahatma Gandhi).
- It has 2 components - urban and rural.
    1. **SBM Urban** aims for the elimination of open defecation, conversion of unsanitary toilets to pour flush toilets, eradication of manual scavenging, municipal solid waste management and bringing about a behavioural change in people regarding healthy sanitation practices.
    2. **SBM Rural (Phase I)** aims to make India an open defecation free country. It seeks to improve the levels of cleanliness in rural areas through Solid and Liquid Waste Management activities and making Gram Panchayats Open Defecation Free (ODF), clean and sanitised.
- The **Phase I of SBM** is claimed to have achieved its goal in **2019.**
- The urban component of the mission is implemented by the **Ministry of Housing and Urban Affairs,** and the rural component by the **Department of Drinking Water and Sanitation, Ministry of Jal Shakti.**

Phase II of SBM Rural

- In 2020, the Union Cabinet approved the **Phase II of the Swachh Bharat Mission (Grameen)** till 2024-25.
- It will focus on Open Defecation Free Plus (ODF Plus), which includes ODF sustainability and **Solid and Liquid Waste Management (SLWM)**. The program will also work towards ensuring that no one is left behind and everyone uses a toilet.

ODF+ and ODF++

- The Union Ministry of Housing and Urban Affairs (MoHUA) launched the **ODF+ and ODF++** programmes towards sustaining and maintaining the toilets built under SBM Urban.
- It aims to further scale up and sustain the work undertaken by the cities after achieving the ODF status under Phase I of the SBM-Urban.
- Cities that have been certified ODF at least once, on the basis of the ODF protocols, are eligible to declare themselves as SBM-ODF+ & SBM-ODF++.
    - While ODF+ focuses on **toilets with water, maintenance and hygiene**, ODF++ focuses on toilets with **sludge and septage management.**

Swachh Bharat Mission for Urban Areas 2.0

- SBM-U 2.0 envisions to make all cities **'Garbage Free'** and ensure **grey and black water management** in all cities other than those covered under AMRUT, make all urban local bodies as ODF+ and those with a population of less than 1 lakh as ODF++, thereby achieving the vision of safe sanitation in urban areas.
- The Mission will focus on **source segregation of solid waste, utilizing the principles of 3Rs (reduce, reuse, recycle)**, scientific processing of all types of municipal solid waste and remediation of legacy dumpsites for effective solid waste management.

Why in news?

- According to the **parliamentary standing committee report** on water resources, **Only 12% of the villages** that were supposed to get infrastructure for **liquid waste management** this year have achieved their goal under the second phase of the Swachh Bharat Mission citing the

pandemic also slowing down progress.

4) What is the Indian Neutrino Observatory & Why Tamil Nadu is against it?

About Indian Neutrino Observatory

- The Indian Neutrino Observatory (INO) is a **proposed underground particle physics research mega project.**
- The project was conceived in 2005, a site under the **Bodi West Hills in Tamil Nadu's Theni district** was identified by 2009.
- The objective of the project was to **study neutrinos in a 1,200-metre deep cave.**
- The INO is proposed to be operated by seven primary and 13 participatory research institutes, spearheaded by the Tata Institute of Fundamental Research (TIFR) and the Indian Institute of Mathematical Sciences (IIMSc).

What are neutrinos?

- A neutrino is a fundamental **elementary particle**, and atmospheric neutrinos can be **studied when solar radiation hits the earth's atmosphere.**
- They are very **hard to detect** as they hardly interact with other forms of matter due to their **lack of electrical charge.**
- They are produced in high-energy processes such as within **stars and in supernovae.** On earth, they are produced by **particle accelerators and nuclear power plants.**
- Neutrino detectors are often built underground to isolate them from cosmic rays from space and any other sources of background radiation.

Why in news?

- Recently, the **Tamil Nadu government filed an affidavit in the Supreme Court disallowing the construction of the proposed Indian Neutrino Observatory** in Theni district, at the Bodi West Hills site.
- The affidavit came in the wake of the National Tiger Conservation Authority (NTCA) providing a no-objection certificate (NoC) to the project.

Why is Tamil Nadu opposing the move?

- The Tamil Nadu is opposing the move due to **ecological concerns**.
- The main concern mentioned in the affidavit is that the project falls exactly on the **hill slopes of part of the Western Ghats, which align within it a significant tiger corridor, namely the Mathikettan-Periyar tiger corridor.**
- The tiger corridor connects the **Periyar Tiger Reserve on the Kerala-Tamil Nadu border and the Mathikettan Shola National Park.**
- Around **31.45 hectares** of the construction site fell inside the Mathikettan-Periyar tiger corridor, one of India's 32 major tiger corridors recognised by the NTCA.
- The TN government's affidavit states that even though experiments in the observatory would be conducted over a kilometer underground, construction activities like **large-scale blasting, excavating, tunneling, and transportation**, as well as safety and security measures around the facility, would affect tiger activity as well as the local ecology.
- At a depth of 1,000 meters, mountain rock would be under tremendous pressure and the vertical stress is expected to be greater than 270 kg per square metre which will create problems like **rock bust and roof collapse.**

5) Frontiers Report

About the report

- The UN Environment Programme (UNEP) works to identify and draw attention to **emerging issues of environmental concern.**
- The Frontiers' report continues to advance this work, signaling environmental issues and solutions for effective and timely responses.
- It is **published by UNEP on an annual basis.**

Why in news?

- Recently, **"Frontiers 2022: Noise, Blazes and Mismatches"** was released.
- The 2022 edition delves into **three issues:**

a. Noise pollution in cities,
b. The growing threat of wildfires and
c. Shifts in seasonal events – such as flowering, migration and hibernation, an area of study known as phenology.

Key Highlights

- According to the WHO guidelines, the report says, the **permissible noise level limits are 55 dB (decibels)** LAeq (equivalent continuous sound level is the sound level in decibels) for **outdoor residential areas and 70 dB LAeq for commercial areas, and where there's traffic.**
- **Uttar Pradesh's Moradabad** has been put on the **second spot in the list of noisiest cities** in the world and it recorded 114 dB noise level being one of India's biggest export hubs.
- **Noise above 70 dB** over a prolonged period of time can increase the risk of hearing loss.
- On top of the list is **Bangladesh's Dhaka**, and Islamabad in Pakistan is at the third spot - all top three cities are from South Asia.
- Other Indian cities where ear-splitting noises have been recorded are **Delhi, Kolkata and Asansol in Bengal, and Jaipur.**
- Eg: In Delhi, the noise levels have been found to be at 83 dB, and for Kolkata - 89 dB.
- The **South-Asian region,** comprising India, Pakistan, Bangladesh, Sri Lanks and Nepal, is the most noise-polluted region while **Europe and Latin America region are the quietest regions.**
- The report highlights that Exposure to **environmental noise sources such as road traffic, air traffic, railways, machinery, industry and recreational activities** have well-documented negative impacts on physical and mental well-being.

ECONOMY

1) RCEP

What's in the news?

- Japan has conveyed that it still has not given up hope that India might reconsider joining the Regional Comprehensive Economic Partnership (RCEP) that it quit in 2019.
- The Japanese Government said that India will be treated exceptionally as a founding member and if India is willing to negotiate its re-entry to RCEP, Japan would be happy to take a lead on that.

About RCEP

- 15 Asia-Pacific nations has signed the Regional Comprehensive Economic Partnership (RCEP) which covers over 2.2 billion people and accounts for 30 per cent of the world's economy. It came into force on January 1 this year.
- The signatory countries include **10 Association of Southeast Asian Nations (ASEAN) members** — Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam — and their five trade partners — **Australia, China, Japan, South Korea and New Zealand.**
- Described as the **"largest" regional trading agreement** to this day, RCEP was originally being **negotiated between 16 countries — ASEAN members** and six countries namely **Australia, China, Korea, Japan, New Zealand and India.**
- The purpose of RCEP was to make it easier for products and services of each of these countries to be available across this region. The agreement also includes rules on intellectual property, telecommunications, financial and professional services, and e-commerce.
- Negotiations to chart out this deal had been on since 2013, and India was expected to be a signatory.

India's exit

- However, in 2019, **India announced its decision to not join RCEP.**
- This came amid concerns that elimination of tariffs would open India's markets to imports, which in turn could harm local producers.

Concerns of India

- **Imbalance in the negotiations between goods and services** was the main concern for India. Member countries pressured India to commit to **zero tariffs on more than 90 percent** of tradable goods with few exemptions.
- However, they were reluctant to India's proposal to allow **free movement of Indian skilled professionals** in the RCEP region.
- Indian industries were also worried that with RCEP allowing a wide range of goods to import at zero tariffs, **Chinese goods will flood India**. It will cause serious damage to the "Make in India" programme.
- India has **trade deficits with most of the RCEP countries,** and some experts feel that India has been unable to leverage its existing bilateral free trade agreements with several RCEP members to increase exports.

Opportunities for India

- Despite these concerns, RCEP will offer India an opportunity to engage with China.
- It will give India a chance to **stall some of its unfair practices** such as giving subsidies unethically and stalling Indian products, such as pharmaceuticals, on the pretext of quality control.
- RCEP will give Indian exporters a window to be a **part of global value chains.**
- Also, there are concerns that India's decision would **impact its bilateral trade ties with RCEP member nations**, as they may be more inclined to focus on bolstering economic ties within the bloc.

- The move could potentially leave India with **less scope to tap the large market that RCEP presents** —the size of the deal is mammoth, as the countries involved account for over 2 billion of the world's population.

2) National Pharmaceutical Pricing Authority's role in fixing drug prices

Context

- Consumers may have to pay more for medicines and medical devices if the National Pharmaceutical Pricing Authority (NPPA) allows a price hike of over 10% in the drugs and devices listed under the National List of Essential Medicines (NLEM), this coming month.
- The escalation which is expected to have an impact on nearly 800 drugs and devices is propelled by the rise in the Wholesale Price Index (WPI).

How does the pricing mechanism work?

- Prices of **Scheduled Drugs** are allowed an increase each year by the drug regulator **in line with the WPI** and the annual change is controlled and rarely crosses 5%. But the pharmaceutical players pointed out that over the past few years, input costs have flared up.
- As per the **Drugs (Prices) Control Order 2013, scheduled drugs**, about 15% of the pharma market, are **allowed an increase by the government as per the WPI while the rest 85% are allowed an automatic increase of 10% every year.** The pharma lobby is now asking for at least a 10% increase for scheduled drugs too than going by the WPI.

Who regulates prices?

- **The NPPA** was set up in **1997** to **fix/revise prices of controlled bulk drugs and formulations and to enforce price and availability of the medicines in the country,** under the Drugs (Prices Control) Order, 1995-2013.
- Its mandate is to **implement and enforce the provisions of the Drugs (Prices Control) Order** in accordance with the powers delegated to it, to deal with all legal matters arising out of the decisions of the NPPA and to monitor the availability of drugs, identify shortages and to take remedial steps.
- The ceiling price of a scheduled drug is determined by first working out the simple average of price to retailer in respect of all branded and generic versions of that particular drug formulation having a market share of more than or equal to 1%, and then adding a notional retailer margin of 16% to it. The ceiling price fixed/revised by the NPPA is notified in the Gazette of India (Extraordinary) from time to time.
- The NPPA is also mandated to collect/maintain data on production, exports and imports, market share of individual companies, profitability of companies etc., for bulk drugs and formulations and undertake and/ or sponsor relevant studies in respect of pricing of drugs/ pharmaceuticals.
- Prices are revised when there is a rise in the price of bulk drugs, raw materials, cost of transport, freight rates, utilities like fuel, power, diesel, and changes in taxes and duties. The cost rises for imported medicines with escalation in insurance and freight prices, and depreciation of the rupee.
- The annual hike in the prices of drugs listed in the NLEM is based on the WPI. The NLEM lists drugs used to treat fever, infection, heart disease, hypertension, anaemia etc and includes commonly used medicines like paracetamol, azithromycin etc.

Why are inputs costs high?

- One of the challenges is that **60%-70% of the country's medicine needs are dependent on China.**
- Self-reliance for India also means self-reliance in bulk drugs (Active Pharmaceutical Ingredients/APIs) and chemicals/intermediates that go into making the drug.
- The **method to calculate the annual ceiling price increase should be revisited.** WPI is dependent on price rise in a basket of a range of goods that

are not directly linked with the items that go into the cost of medicines. More importantly, the unrealistic simple average method of calculating ceiling prices should be replaced by a cost-plus mechanism that was prevalent under the earlier DPCO 1995.

INTERNATIONAL RELATIONS

1) Japan to invest $42 billion in India over five years

What's in the news?

- India and Japan have set an **investment target of "five trillion yen" ($42 billion) in the next five years**, the leaders announced after a meeting in New Delhi for the 14th annual summit, where several agreements were signed.
- This was the first India–Japan annual summit since 2018, which had been postponed due to protests against the Citizenship (Amendment) Act and then due to the pandemic.
- PM Modi said as the global post–covid recovery process falters and geopolitical developments present new challenges, it was necessary to deepen the India–Japan partnership, which would have an impact on the Indo–Pacific region, and the world, adding that the two leaders had also discussed strengthening bilateral cooperation including at the United Nations.
- While Japan has consistently criticised Russia's Ukraine invasion and imposed several sanctions on Russia including economic and oil equipment export bans, India has thus far refused to vote for any resolutions criticising Russia, and Indian companies are stepping up their intake of Russian oil.
- The two sides also exchanged **six agreements on cybersecurity, economic partnerships, waste–water management, urban development, a clean energy partnership** and an **agreement on promoting bamboo–based products from the northeast region.**
- The two sides also concluded a **roadmap for competitive partnership for the MSMEs and the small–scale sector companies.**
- The **"2+2" meeting of Foreign and Defence Ministers** in the next few months is due to take forward agreements on the strategic partnership and PM Modi is expected to visit Tokyo in May or June, where he will hold another bilateral summit and attend the Quad summit with the U.S. President and the Australian Prime Minister.

2) South China Sea dispute

Background

- Currently, among the most disputed topics in the world, in the South China Sea (SCS) dispute, the governments of six countries (Vietnam, Indonesia, Philippines, Brunei, Malaysia and China) claim that they are the rightful owner of **Paracel and Spratly islands**, and among them, China has been the most aggressive one.
- The disputed sea is composed of approximately 100 to 230 islands wherein small islands called islets are usually included in it.
- The Chinese government claims an enormous area under what is known as the **"nine-dash line"** that is over 2000 km long, starting from mainland China and reaching waters close to Indonesia and Malaysia. China maintains that the area has been under Chinese rule since ancient times.
- China has been building military bases on small islands and also expanding the area of islands artificially.

Importance of the South China Sea

- This sea route, connecting Asia with Europe and Africa, is an **important trade passageway** for international trade.

- The **Strait of Malacca**, along with the **Lombok Strait** and **Sunda strait** are all connected with SCS and responsible for oil and LNG imports by major countries such as China, Japan, Indonesia, South Korea, and others from Gulf countries.
- It is estimated that around 15 million barrels each day are transported through the Strait of Malacca, making it the **second busiest strait** after the Strait of Hormuz in terms of oil transportation with respect to volume.
- The economy of China depends upon the oil import in which 80% of the oil is transported through the Strait of Malacca and then through SCS to China, which means that full control and easy access through this strait is the justification behind economic prosperity of the Chinese nation.
- Apart from the strategic importance of the SCS, this region is also blessed with **large deposits of natural resources beneath the sea**.
- Aside from oil and gas reserves, this region is also gifted with **one-third of the total marine biodiversity of the Earth**, which means that substantial revenue can also be generated through **fishing** alone.

PCA award

- Following the dispute, the Philippines filed a case against China in the **Permanent court of arbitration (PCA)** under the dispute settlement provisions of the **UNCLOS.**
- In 2016, a tribunal of the PCA issued its **ruling against China's claims in the South China Sea.** The tribunal's five arbitrators ruled overwhelmingly in the Philippines' favor after finding that China had violated the sovereign rights of the Philippines in its exclusive economic zone.
- However, **China refused to participate in the arbitration and rejected the outcome.**

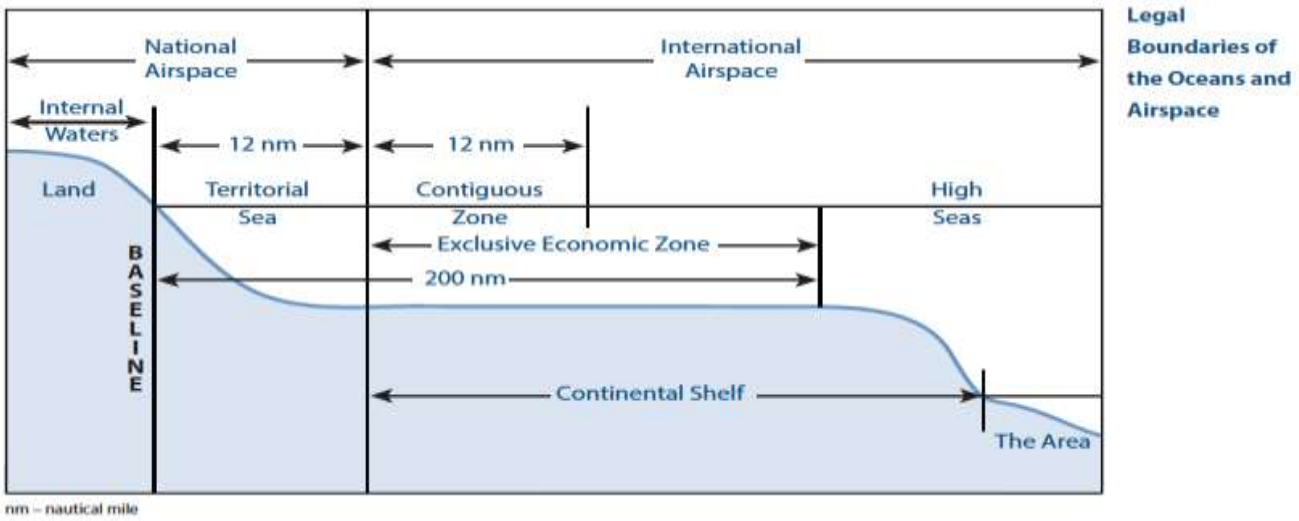
Why in News?

- China has said it has the right to develop South China Sea islands as it sees fit in the wake of U.S. accusations that it has fully militarized at least three of several islands it built in the disputed waterway in violation of a previous commitment.
- China claims as its own territory virtually the entire South China Sea, home to fish stocks and undersea minerals, along with sea lanes through which an estimated $5 trillion in global trade travels each year.
- China refuses to acknowledge claims from five other governments to some or all of the waterway and dismissed the findings of a U.N.-backed arbitration tribunal that invalidated China's sweeping historical claims under the U.N. Convention on the Law of the Sea.
- The fully militarized islands are among seven China has constructed in recent years by piling sand and concrete atop coral reefs, causing heavy damage to the marine environment.

Related information

About UNCLOS

- The United Nations Convention on the Law of the Sea (UNCLOS), also known as the **Law of the Sea Treaty**, is an international treaty which was adopted and signed in 1982. The Convention was formed to ensure freedom of shipping navigation at the sea.
- The Convention has created three new institutions on the international scene :
    - **the International Tribunal for the Law of the Sea,**
    - **the International Seabed Authority,**
    - **the Commission on the Limits of the Continental Shelf.**
- **India** is a party to UNCLOS.
- UNCLOS classifies marine areas into five zones. They are:
    - Territorial sea
    - Contiguous zone
    - Exclusive economic zone
    - Continental shelf
    - High Sea



Territorial sea

- According to UNCLOS, the territorial sea can be defined as the area which extends up to **12 nautical miles** from the baseline of a country's coastal state. The territorial sea is under the jurisdiction of that particular country; however, foreign ships (both merchant and military) ships are allowed passage through it.
- This type of passage of territorial passage of foreign ships is known as an **innocent passage.** However, the right to the innocent passage can be suspended if there is a threat to the security of the coastal state.

Contiguous Zone

- The contiguous zone can be defined as the belt which **extends 12 nautical miles beyond the territorial sea limit.**
- A coastal state's control on this area is limited to prevention of actions which can infringe its customs, fiscal, and immigration laws. It can also act if any activity in the contiguous zone threatens regulations in the territorial sea.

Exclusive economic zone

- The exclusive economic zone can be defined as a belt of water which **extends up to 200 nautical miles** from the baseline of the coastal state. Thus it **includes both territorial sea and contiguous zone.**
- The exclusive economic zone provides the coastal state **control over all economic resources** such as fishing, mining, oil exploration, and marine research.
- The coastal state also has jurisdiction regarding protection and preservation of natural resources and marine environment.

Continental Shelf

- The continental shelf can be defined as the area whose outer limit **shall not exceed 350 nautical miles from the baseline** or **shall not exceed 100 nautical miles from the 2500 meters isobath.**
    - *Isobath is a line connecting points of equal underwater depth.*
- The coastal state has exclusive rights for exploring and exploiting its natural resources in this area. The state also has the exclusive rights to authorize and regulate drilling on the shelf for all purposes.

High Seas

- High seas can be defined as the part of the sea that is **not included** in the exclusive economic zone, in the territorial sea, or in the internal waters of a coastal state or archipelagic waters of an archipelagic state.
- High seas are **open to all states** for freedom of navigation, freedom of overflight, freedom to construct artificial islands installation, freedom of fishing, and freedom of scientific research.

About PCA

- The Permanent Court of Arbitration was established by the **Convention for**

the Pacific Settlement of International Disputes, concluded at The Hague in 1899 during the first Hague Peace Conference.

- The 1899 Convention was revised at the second Hague Peace Conference in 1907.
- The PCA is not a court in the traditional sense but provides services of an **arbitral tribunal** to resolve disputes that arise out of international agreements between member states, international organizations or private parties.
- The cases span a range of legal issues involving territorial and maritime boundaries, sovereignty, human rights, international investment, and international and regional trade.
- The PCA has **no sitting judges: the parties themselves select the arbitrators.**
- The PCA is an official United Nations Observer. It is headquartered in The Hague, Netherlands.

Members

- The PCA has more than 120 Contracting Parties which have acceded to one or both of the PCA's founding conventions (1899 and 1907 Conventions).
- **India is a party** to the PCA according to the convention of 1899.

SCIENCE AND TECHNOLOGY

1) Effect of Ukraine conflict

Why in News:

- The Ukraine-Russia conflict is expected to further impact the already stressed global semiconductor supply as raw material exported from the two countries such as neon gas, chemical C4F6 and palladium.

Effects

- Ukraine crisis will result in **shortages of key raw materials**, eventually affecting the semiconductor supply chain
- **India** would also face some **direct or indirect impact in its electronics manufacturing.**
- **Consumer appliances** sector in India is more likely to be **impacted** by the increase in prices of other raw materials such as steel. Semiconductor shortage is expected to put pressure on the supply of smartphones, laptops and automobiles.

What is C4F6?

- Hexafluorobutadiene(C4F6) is an **organofluorine compound**
- A **colorless gas**, it has attracted attention as an **etchant in microelectronics**(Etching is used in microfabrication to chemically remove layers from the surface of a wafer during manufacturing.)

Palladium

- It is a rare and lustrous silvery-white metal
- Palladium, platinum, rhodium, ruthenium, iridium and osmium **form a group of elements referred to as the platinum group metals (PGMs)**. They have similar chemical properties, but palladium has the lowest melting point and is the least dense of them.
- More than half the supply of **palladium is used in catalytic converters**, which convert as much as 90% of the harmful gases in automobile exhaust.
- Palladium is **used for multi-layer ceramic (chip) capacitors (MLCC).** MLCCs store energy in electronic devices such as broadcasting equipment, mobile telephones, computers, electronic lighting and high voltage circuits.
- Palladium is also used in electronics, dentistry, medicine, hydrogen purification, chemical applications, groundwater treatment, and jewelry.
- Palladium is a **key component of fuel cells,** in which hydrogen and oxygen react to produce electricity, heat, and water.

Neon:

- **Neon** (Ne) is a chemical element that is used in electric signs and fluorescent lamps.
- It is an **inert gas** belonging to Group 18 (noble gases) of the periodic chart.
- Neon is the **fifth most abundant element in the universe.** However, it is present in the Earth's atmosphere at a concentration of just 18 parts per million
- Neon gas is **colourless, odourless, tasteless, and lighter than air**, and it is found in trace amounts in Earth's atmosphere and trapped inside the crust's rocks.
- Neon will not react with any other substance. It is **used for lithography in semiconductor fabrication**. Because of its short wavelength, it can produce patterns in the wafer chip as small as 193 nanometres.
- Neon is also used **to make high-voltage indicators and switching gear, lightning arresters,** diving equipment and lasers.
- **Liquid neon is an important cryogenic refrigerant.** It has over 40 times more refrigerating capacity per unit volume than liquid helium, and more than 3 times that of liquid hydrogen.

2) India and the Arctic

Why in News:

- India aspires to have a permanent presence with more research and satellite ground stations in the Arctic

region, suggests a perusal of its Arctic Policy document.

About Arctic

- **Arctic region,** the enormous area around the **North Pole** spreading over **one-sixth of the earth's landmass**
- While the attraction of Arctic **oil and gas reserves**, unexploited marine living resources and shorter **shipping routes connecting the Pacific and the Atlantic Oceans** is undeniable, the adversarial impact of melting Arctic Ice cap on the indigenous communities, the marine ecosystems and aggravation of global warming is equally undeniable.
- **Antarctica**, though uninhabited, is **governed by the 1959 Antarctic Treaty** ensuring that it is used for exclusively peaceful purposes. There is **no similar international regime for the Arctic.**
- The Arctic region is very rich in some minerals, and oil and gas. With some parts of the Arctic melting due to global warming, the region also opens up the possibility of new shipping routes that can reduce existing distances. Countries which already have ongoing activities in the Arctic hope to have a stake in the commercial exploitation of natural resources present in the region.

India and the Arctic

- India's engagement with the Arctic dates back when it signed the **'Svalbard Treaty'** in February 1920 in Paris.
- India launched its **first scientific expedition** to the Arctic Ocean in 2007 and opened a **research base named "Himadri"** at the International Arctic Research Base at, **Svalbard**, **Norway**

India's involvement in the Arctic

- India is one of the very few countries to set up a permanent station in the Arctic for the purposes of scientific research. The polar regions offer some unique opportunities to carry out **research** related to **atmospheric and climate sciences** that cannot be done anywhere else.
- The Himadri research station, located in Ny Alesund, Svalbard in Norway, about 1200 km south of the North Pole, was started in 2008. The Goa-based National Centre for Antarctic and Ocean Research (**NCOAR**) is the nodal organisation coordinating the research activities at this station.
- The station has been used to carry out a variety of **biological, glaciological and atmospheric and climate sciences research projects** in the last one decade, with over 200 scientists from a number of institutions, universities and laboratories having accessed the facilities at the station.
- **Himadri** came on the back of India's three-decade experience of carrying out **scientific research** in the polar regions of Antarctica which began in 1981. **India's first permanent station in Antarctica (Dakshin Gangotri)** was set up way back in 1983. In 2010, Indian scientists undertook a scientific expedition to the South Pole as well. India is now among the very few countries which have multiple research stations in the Antarctic.

Why should India involve in the Arctic

- Though none of India's territory directly falls in the Arctic region, it is a crucial area as the **Arctic influences atmospheric, oceanographic and biogeochemical cycles** of the earth's ecosystem. Due to climate change, the region faces the loss of sea ice, ice caps, and warming of the ocean which in turn impacts the **global climate.**
- The **frigid Arctic,** which keeps losing ice due to global warming, is **one of the batteries feeding the variations in Indian monsoons**
- India could be **particularly impacted as changes in the Arctic** have an effect on **water security and sustainability, weather conditions and monsoon patterns, coastal erosion and glacial melting,** economic security and critical aspects of national development
- The importance of the Arctic area is owing to the **shipping routes** that pass through it.

- The unfavourable consequences of the Arctic, according to a research released by the Manohar Parrikar Institute for Defence Studies and Analyses, are affecting not just the availability of **mineral and hydrocarbon resources,** but also global shipping routes.
- India, according to the Ministry of External Affairs, can contribute to **maintaining a stable Arctic.**

Arctic Council

- The Arctic Council is the leading **intergovernmental forum** promoting cooperation, coordination and interaction among the Arctic States, Arctic Indigenous peoples and other Arctic inhabitants on common Arctic issues, in particular on issues of sustainable development and environmental protection in the Arctic. It was formally established in 1996.
- The Council was established by the **eight Arctic States** — the countries whose territories fall in the Arctic region — through the **Ottawa Declaration of 1996.** The eight Arctic States — **Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States** — are the only members of the Arctic Council.
- Besides them, six organisations representing the indigenous people of the Arctic region have been granted the status of permanent participants. All decision-making happens through consensus between the eight members, and in consultation with the permanent participants.
- The **Arctic Council does not prohibit the commercial exploitation of resources in the Arctic.** It only seeks to ensure that it is done in a sustainable manner without harming the interests of local populations and in conformity with the local environment.
- **Observer status** in the Arctic Council is **open to Non-governmental organizations, Non-littoral states** as well as to **Intergovernmental and Inter-Parliamentary organizations**.
- The Council is **not a treaty-based international legal entity** like the UN bodies or trade, military or regional groupings like WTO, NATO or ASEAN. It is **only an intergovernmental 'forum'** to promote cooperation in regulating the activities in the Arctic region. It is much more informal grouping.
- Through six working groups, each dealing with a specific subject, the Arctic Council seeks to evolve a consensus on the activities that can be carried out in the Arctic region in keeping with the overall objective of conserving the pristine environment, biodiversity, and the interests and well-being of the local populations.
- **India** is an **observer** of the Arctic Council.

India's arctic policy

- India's Arctic Policy Roadmap For Sustainable Engagement draft rides on **six pillars: science and research activities, environmental protection, economic and human development cooperation, transportation and connectivity, governance and international cooperation, and national capacity building.**
- The draft spells out goals in India's Arctic Mission such as to better understand the **scientific and climate-related linkages** between the **Arctic and the Indian monsoons**; to **harmonise polar research** with the third pole (the **Himalayas**) and to advance the study and understanding of the Arctic within India.

India's Arctic policy aims to promote the following agenda—

1. Strengthening national capabilities and competencies in science and **exploration**, **climate and environmental protection**, **maritime** and **economic** cooperation with the Arctic region. Institutional and **human resource capacities** will be strengthened within Government and academic, research and business institutions.
2. Inter-ministerial coordination in pursuit of **India's interests in the Arctic.**
3. Enhancing understanding of the **impact of climate change in the Arctic on India's climate, economic, and energy security.**
4. Contributing better **analysis, prediction, and coordinated policymaking** on the implications of ice melting in the Arctic on India's **economic, military and strategic interests** related to global shipping routes, energy security, and exploitation of mineral wealth.
5. Studying **linkages between polar regions and the Himalayas.**
6. **Deepen cooperation** between India and countries of the Arctic region under various Arctic forums, drawing expertise from scientific and traditional knowledge.
7. Increase India's participation in the Arctic Council and improve understanding of the complex governance structures in the Arctic, relevant international laws, and geopolitics of the region.

Related Mains Question- How can the Arctic play an active role in India-Russia bilateral relationship?
https://bit.ly/3Ipttwt

3) Abel Prize

Why in News:

- Abel prize for 2022 has been awarded to Dennis P. Sullivan.

About the prize

- The **Abel Prize** is awarded annually to **outstanding mathematicians.**
- It was established by the **Norwegian Government** in 2002, and is managed by The Norwegian Academy of Science and Letters.
    - **Other prestigious prize** awarded in the field of **mathematics is the Fields Prize.**

4) Artemis

Why in News:

- National Aeronautics and Space Administration (NASA) rolled out its Artemis I moon mission to the launchpad.
- Along with NASA, Canadian Space Agency, European Space Agency, Japan Aerospace Exploration Agency are also involved in the Artemis programme

What is the Artemis mission?

- NASA's Artemis mission is touted as the next generation of lunar exploration, and is named after the twin sister of Apollo from Greek mythology. Artemis is also the goddess of the moon.
- Artemis I is the first of NASA's deep space exploration systems. It is an uncrewed space mission where the spacecraft will launch on Space Launch System (SLS) — the most powerful rocket in the world
- The SLS rocket has been designed for space missions beyond low-earth orbit and can carry crew or cargo to the moon and beyond. With the Artemis programme, NASA aims to land humans on the moon by 2024, and it also plans to land the first woman and first person of colour on the moon.
- NASA will establish an Artemis Base Camp on the surface and a gateway in lunar orbit to aid exploration by robots and astronauts.

Key Technical Aspects

- **Orion Spacecraft-** The **NASA spacecraft that will carry astronauts from Earth to lunar orbit and back.** The Orion spacecraft is **going to remain in space** without docking to a space station.
- **Space Launch System Rocket-** The **only rocket that can send Orion,**

astronauts, and cargo to the Moon on a single mission.
- **Artemis Base Camp-** To give astronauts a **place to live and work on the moon,** the Artemis Base Camp concept includes a modern lunar cabin, a rover, and a mobile home.

Future missions in the Artemis programme

- **Artemis I** will be an **uncrewed** test flight of the Space Launch System (SLS) and the Orion spacecraft around the Moon.
- **Artemis II,** the second flight under the programme, **will have crew on board** and will test Orion's critical systems with humans onboard. Eventually, the learnings from the Artemis programme will be utilised to send the first astronauts to Mars.
- **Artemis III** spacecraft **will land people on the Moon's South Pole.** NASA plans on using the lunar orbit to gain the necessary experience to extend human exploration of space farther into the solar system.

To read about India's lunar mission Chandrayaan-
https://officerspulse.com/chandrayaan-3-2/

5) Datacentres

Why in News:

- Microsoft has partnered with Fortum, a Finnish energy company to heat homes, services and businesses in Finland with sustainable waste heat from a new datacentre region.

What is a data centre?

- A data centre is a **physical facility** that organisations use to **store their critical applications and data, process data and disseminate them to users.**
- It is designed based on a **network of computing and storage resources** that enables **delivery of shared applications and data.**
    - The key components of a data centre are routers, switches, firewalls, storage systems, servers, and application-delivery controllers.

The need for recycling

- Since data centers consume large amounts of energy, it's important to ensure the physical structures that house them are well-designed and insulated to **optimise temperature controls and energy efficiency.**
- The temperatures recorded in the hot aisles of a data centre hover between 80 and 115 degrees Fahrenheit
- Global cybersecurity firm Kaspersky estimates **over 75% of a datacentre's electricity becomes waste heat**. It noted that in winter, a data centre can provide heating up to 85 degrees Fahrenheit, similar to a gas boiler, with better energy efficiency than a heat pump in a new house.

Carbon footprint of data centres

- On a **global** level, **data centers consume around 200 terawatt-hours (TWh) of electricity,** which is more than **1% of the world's total electricity**. They contribute to **0.3% of all global CO2 emissions,** according to the International Energy Agency.
- Data Centre energy usage in some countries could increase to 15% to 30% of their total domestic electricity consumption by the end of the decade

How does recycling help?

- The heat recycling system **can provide clean heat to homes, businesses and public buildings**, and can **reduce up to 400,000 tons of CO2 emissions annually.**
- **Excess heat generated** by the new data centre region and **transfers the clean heat from the server cooling process** to homes, services and business premises that are connected to the district heating system. It is a system of generating heat in a centralised location by capturing heat and then distributing it to buildings for residential and commercial heating needs. The **heat** is **transferred** to customers as **hot water** which is pumped through insulated underground pipes.

Related Information

India's Draft Data Centre Policy 2020

What does it hope to achieve?

- Making **India a Global Data Centre hub**
- Promote **investment** in the sector,
- Prope**l digital economy growth,**
- Enable provisioning of **trusted hosting infrastructure** to
    - **fulfil** the growing **demand** of the country and
    - facilitate state of the **art service delivery to citizens.**

Features of the draft policy

- **Provide** the **Data Center Sector** with **Infrastructure Status** on par with other sectors such as Railways, Roadways, and Power.
- **Single Window Clearance**: A time-bound, single-window approval mechanism for all the approvals needed to set up a data-center park.
- **Incentivization Scheme:** The Data Centre Incentivization Scheme (DCIS) will be developed, including the intended beneficiaries, application requirements, and fiscal and non-fiscal incentives available to the industry.
- Data centres will be **designated as an essential service under "The Essential Services Maintenance Act, 1968 (ESMA),"** which implies that services will be available even in the event of a disaster or catastrophe.
- **Inter-Ministerial Empowered Committee (IMEC)**: It will be established under the chairmanship of the Secretary, MeitY, with involvement from several Central Ministries and State Governments to support the implementation of various sectoral initiatives.
- **Data Centre Industry Council (DCIC)**: It is recommended that an independent Data Centre Industry Council (DCIC) be established to serve as a liaison between the industry and the government.
- **Collaboration with the Ministry of Skills Development and Entrepreneurship (MSDE) and top academic institutes** to provide workforce training in Data Center, Digital, and Cloud technologies, as well as to promote sector connections for these skilled workers.
- Strengthening the Atmanirbhar Bharat project by finding potential prospects for data centre equipment (both IT and non-IT) production in the nation.
- The policy also outlines areas where **micro, small, and medium-sized businesses and start-ups** would be able to participate.
- The establishment of data centre parks requires the **demarcation of distinct zones** with the appropriate infrastructure, such as roads, running water, and power.
- Data centre parks would be **encouraged to build up their own power production units and use renewable energy** to address the challenges of excessive power usage.

The need for a policy

- **Data** is **used** in the launch of the **National Digital Health Mission (NDHM)** and the **Global Partnership on Artificial Intelligence (GPAI).**
- By **2025**, India's **digital economy** is expected to have grown from **USD 200 billion in 2017-18 to USD 1 trillion.**
- India also has the advantages of a **favourable geographical location** on the world map, **economic resources, established global connectivity via submarine cables, easy and cost-effective access to power,** and readily available **skilled manpower**, all of which contribute to the country's ability to become a global Data Centre hub.
- **Data localization requirements** in the planned personal data protection law, as well as **protection of the country's digital sovereignty.**
- India has seen a rapid **increase in digital commerce, digital entertainment, and social media usage**. India's mobile data usage is already the world's biggest and continues to rise.

Issues

- **High capital and operational costs.**
- **Different energy prices across states**
- The **connection of submarine cable networks** is **limited** to a few states.

- There are **no written standards for data centre construction**, and there are **no specialised building codes.**
- The data centre industry is **primarily concentrated** in the top four cities, with Mumbai, Delhi, Bengaluru, and Chennai accounting for 60% of all locations.
- Data Centers suffer from a **lack of infrastructure and a lack of industry status.**
- **Complicated clearance procedures** and long approvals are the norm.

6) Hypersonic Technology

What are hypersonic weapons

- They are **manoeuvrable weapons** that can **fly at speeds of at least Mach 5,** five times the speed of sound.
    - The speed of sound is Mach 1, and speeds above Mach I are supersonic and speeds above Mach 5 are hypersonic.
- They are **different from Ballistic missiles** which, even though are travel much faster, **follow a fixed trajectory** and **travel outside the atmosphere to re-enter only near impact.** Once the **ballistic missiles** are launched they **cannot alter their course.**
- On the other hand, **hypersonic weapons travel within the atmosphere and can maneuver midway** which combined with their high speeds make their detection and **interception extremely difficult.** This means that **radars and air defences cannot detect** them till they are very close and have only little time to react.

Types of hypersonic weapons

- There are **two classes of hypersonic weapons**, **Hypersonic glide vehicles (HGV) and Hypersonic Cruise Missiles (HCM)**.
- **HGVs** are **launched from a rocket before gliding to a target**, while **HCM** are **powered** by **high-speed, air-breathing engines, or scramjets, after acquiring their target.**
    - The HGV leaves the Earth's atmosphere and then plunges back into it. To fool the enemy's radar, this hypersonic vehicle glides through the upper layers of the atmosphere, through a random series of curves and turns.
    - HCM is not as fast as HGV, but is designed to fly low and at extremely high speed. This is to take the enemy by surprise. And there is hardly any time for the enemy to hit back.

What is different about hypersonic technology?

- Hypersonic missiles are a new class of threat because they are **capable both of manoeuvring and of flying faster than 5,000 kilometres per hour,** which would enable such missiles to **penetrate most missile defences** and to further **compress the timelines for response by a nation under attack.**

Challenges in developing the technology

- **Friction** is the key challenge as the temperatures go up to as high as 2,200 degrees Celsius. And these missiles have to be designed from highly advanced materials which have the capability of withstanding such high temperatures.
- **Communication** is another issue, as it becomes difficult to connect in these hypersonic weapons as the heat builds up a **cloud of super-charged particles known as plasma.** There is a blackout moment in communications when a spacecraft is re-entering the atmosphere.
- Another challenge faced is maneuverability at high speeds, as it puts a lot of pressure on the structure of the missile.

India and Hypersonic technology

- **India** became the **fourth country** to have demonstrated this technology **after the USA, Russia and China**
- India is also **developing** an indigenous, dual capable (conventional as well as nuclear) **hypersonic cruise missile as part of its Hypersonic Technology Demonstrator Vehicle programme** and has successfully tested a Mach 6 scramjet

- In addition, the **DRDO established** a **Hypersonic Wind Tunnel (HWT)** test facility
    - HWT test facility is a pressure vacuum driven enclosed free jet facility having nozzle exit diameter of one metre and will simulate Mach No. 5 to 12 speeds. Wind tunnels are enormous tubes through which air rushes at great speeds. Air is directed around an item in these tunnels, allowing it to reach the flying stage. The hypersonic wind tunnel is **used to test flight characteristics in a hypersonic region** of Mach number 5 or more.
- A hypersonic version(BrahMos-II) of the BrahMos supersonic cruise missile, a joint development of India and Russia, is also under development.

Its significance in protecting the interest of our nation

- Hypersonic technological advancements, along with a **rising US-China rivalry** and a year-long **stalemate with Indian soldiers in eastern Ladakh**, pose a significant danger to India's space and surface capabilities.
- To maintain a minimum **credible deterrence**
- It can provide **advanced security** as they are tough to be detected
- As interception is tough, it gives a **strategic advantage during war**
- As the speed is high, it **can avoid interception** and can have increased **efficiency over hitting the target**
- The technology that is needed to develop the hypersonic technology can be used for **developing other scientific discoveries** that can help our country
- In 2021, China had launched a rocket and it had carried a hypersonic glide vehicle (HGV).

Why in News:

Recently the Russian Ministry of Defence announced that it used the hypersonic missile for the first time in the conflict with Ukraine.

Related mains question

Explain the concept of hypersonic missiles and its significance in protecting the interests of our nation- https://bit.ly/3586Fnn

For doubts and queries email us at: doubts@officerspulse.com

DEFENCE

1) Geography and India's strategic advantage

Why in News:

- The Navy said it is building capacity to ensure that whatever capacity China can bring into the region, it has all those capabilities to counter that, at the parliamentary standing committee on defence.

How geography helps India

- India's **central location in the Indian Ocean** makes it the natural naval power in that ocean. India can use **historical ties, the influence of diaspora communities,** and the guarantee of security to increase its naval involvement in both the eastern and western extremities of the Indian Ocean, near the **Straits of Malacca and in the Persian Gulf** and the **Red Sea**.
- **Lord Curzon** pointed out that **India could veto any rival in Tibet, but India has lost** its **position** there since the People's Liberation Army (PLA) of China moved into Tibet in 1950. Having lost control of the high ground — literally — in regards to Tibet, there is little India can do to exert influence in that direction, or over a stronger China.
- India **could shore up its relations with Southeast Asia,** which shares both land and sea borders with India and the Indian Ocean.
- India's **only foreign military base is located in Tajikistan,** which **allows** it to continue to be involved in **Afghanistan and Central Asia.**
- Modern India is situated between the Middle East, Central Asia, China, Southeast Asia, and the Indian Ocean.
- India can also use its central location in the Indian Ocean to become a **hub of transportation, communication, and trade.**
- On the high seas it **commands the routes to Australia and the China Sea.**
- In the case of China, the Navy said **China's coastline is 18,000 km** and has other adversaries. So, the **number of assets** that China can bring into the Indian Ocean is much less.

What India is doing to protect Indian Ocean Region

- **Building the capacity t**o match the assets that she can bring into our waters.
- India is improving the capacity to have anti–submarine warfare capability enhanced so that the Navy can detect China's submarines
- **Air surveillance and surveillance aircraft** which can carry out **Anti-Submarine Warfare (ASW)** and also carry out anti–underwater surveillance by dropping sonobuoys
- The Navy has inducted 12 P-8I long–range **maritime patrol aircraft**
- Navy has significantly **scaled up ASW training and cooperation,** especially with the **Quad navies**
- India has also taken up **capacity building in a big way to assist littoral states** in augmenting their armed forces.

The need

- The **Chinese naval presence in the Indian Ocean Region (IOR)** has steadily been increasing since 2008 and it now has a **naval base at Djibouti** in addition to several dual use facilities across the region.
- **IOR has multiple security challenges** as it contains **major shipping lines** and nearly 1,20,000 ships transit through various choke points. Almost 13,000 ships are in IOR at any point of time and the region is the centre of gravity of **piracy** and **trans–national crimes** and **also locus of 70% of world's natural disasters**

Related articles

- ***Goa maritime Conclave:***
  1. ***https://officerspulse.com/goa-maritime-conclave/***
- ***Maritime Domain Awareness:***

1. ***https://officerspulse.com/initiatives-towards-maritime-domain-awareness/***
2. ***https://officerspulse.com/boosting-india-with-maritime-domain-awareness/***

2) India's Defence Indigenization

Why in News:

- Given its successive **abstentions during votes on Ukraine** in the UN Security Council and elsewhere, India has attracted **criticism** citing "**realpolitik**" by critics.
- **Russia provides 60-70 percent of India's military weaponry**. Any disruption in supplies might have a significant impact on our defence position in relation to the China-Pakistan axis. It has called into question India's "strategic autonomy."

Background

- **India** had the dubious distinction of being the **one of the world's largest arms importer,** accounting for about **12% of global arms imports.**
- This external dependence for weapons, spares and, in some cases, even ammunition creates vulnerabilities during military crises.
- **The SIPRI** report found that **India's arms imports came down by a third** between **2011-2015 and 2016-2020,** at a time when the government has been trying to reduce the import dependence when it comes to defence platforms and weapons.
- However, **India remained the second highest importer, only behind Saudi Arabia**. The top five global arms exporters were the US, Russia, France, Germany and China in 2016-2020.
- In the study, SIPRI stated, "**Arms imports by India decreased by 33 percent** between 2011–15 and 2016–20. Russia was the most affected supplier, although India's imports of US arms also fell, by 46 per cent."
- The report attributed the fall not to the government's push to make **India self-reliant** in defence manufacturing, but to factors including reducing the dependence on Russian arms, and the complex procurement procedure.

Other aspects of indigenization

- Defence manufacturing is one of the few industries that may provide a **wide range of job opportunities.** According to official projections, a 20-25 percent reduction in imports will result in the creation of 100,000 to 120,000 extra highly skilled employment in India.
- Aside from that, it will result in **large-scale innovation, a slew of spin-off sectors and start-ups**, and so on.
- According to **SIPRI data, India is the 23rd largest exporter of defence goods.** Given that India spent $71.1 billion on defence in 2019, this is a significant underperformance. India can **export defence technology** and equipment made in the country to its neighbours. R&D in the defence industry, like space and nuclear research, will place a greater emphasis on both the civil and military economies.
- According to SIPRI, India's **military spending accounted for 2.4 percent of GDP in 2019**. It was larger than the sum of health and research spending (1.5 percent of GDP) (0.7 percent of GDP). The government must accelerate indigenization in the defence industry since it has several benefits, including reduced fiscal deficits, improved manufacturing, and so on.

Issues associated with Russian Imports

- Safeguarding the **source of 60-70 percent of its military hardware** constitutes a prime national interest for India.
- Any **interruption** in the supply of Russian arms or spares could have a **devastating impact on our defence posture vis-à-vis the China-Pak axis.**
- **Russia's military-industrial complex**, has been struggling against **inefficiency**, **poor quality control and deficient customer support.**

The answers to India's dilemma lie in two imperatives. They are: The "de-Russification of the armed forces" and the genuine "indigenisation of India's defence technological and industrial base (DTIB)"

Measures taken to reduce imports

- The decision to **notify a list of weapons(negative import list)** systems for sourcing entirely from Indian manufacturers, the promise to progressively expand this list and a **separate Budget provision for domestic capital procurement.**
- The liberalisation of **foreign direct investment** in defence manufacturing, raising the limit under the automatic route to **74%**, should open the door to more joint ventures of foreign and Indian companies for defence manufacturing in India.
- **Mission Raksha Gyan Shakti**
    - The Ministry of Defence launched it in 2018 with the goal of **increasing Intellectual Property (IP) in the Defense Production Ecosystem.**
- **India's Defence Technology Industrial Base (DTIB)**
- **Chief of Defence Staff (CDS)** has been **tasked** with **promoting indigenous equipment** in the armed force
- **Defence India Startup Challenge**- Read at https://officerspulse.com/defence-india-startup-challenge/
- **Draft Defence Production and Export Promotion Policy 2020**- Read at https://officerspulse.com/draft-defence-production-and-export-promotion-policy-2020/
- **Defence Procurement Procedures (DPP) 2020**
    - It allows for the publication of a list of weapons or platforms that cannot be imported
    - It focuses on FDI in defence production and indigenization of manufacturing costs.
    - It also introduces numerous new concepts, including the need for artificial intelligence in platforms and systems, the use of indigenous software in defence equipment, and 'innovation' by start-ups and MSMEs (Micro, Small and Medium Enterprises) as a new category of defence purchase.
    - Buy (Indian – Indigenously Designed, Developed, and Manufactured), Buy (Indian), Buy and Make (Indian), Buy (Global – Manufacture in India), and Buy (Global – Manufacture in India) (Global).
    - It raises the Indigenous Content (IC) requirement for all projects from 40 to 50 percent previously, depending on the category, to 50 to 60 percent now.
    - Foreign vendors can receive 30% IC from Indian enterprises only if they purchase through Buy (Global).
- **Defence Industrial Corridors**- Read at https://officerspulse.com/defence-industrial-corridors/

SRIJAN Portal

- The Department of Defence Production has created an **indigenization webpage**, srijandefence.gov.in, titled 'opportunities for Make in India' in Defense, that would **provide information on things that can be indigenized by the private sector.**
- DPSUs/OFBs/SHQs can use this portal to exhibit things that they have been importing or will be importing that the Indian industry can design, develop, and produce according to their capabilities or through joint ventures with OEMs.

- **Corporatization of the Ordnance Factory Boards**- Read at https://officerspulse.com/ordnance-factory-board-corporatisation/
- **Innovations for Defence Excellence (iDEX)**- Read at https://officerspulse.com/innovations-for-defence-excellence-idex-initiative/

Challenges faced

- In-house manufacturing is hampered by a **lack of critical technologies, poor design skills in vital technologies, insufficient R&D expenditure,** and the inability to produce major **subsystems** and

components. The interaction between R&D, production agencies (public or commercial), and end-users is severely strained.

- The Indian government has authorised over 200 defence procurement bids with a transfer of technology provision worth roughly Rs 4 trillion in the last five years, but the majority are still in the early stages of processing causing **inordinate delays.**
- India's defence manufacturing capabilities are hindered by the **Ministry of Defence and Ministry of Industrial Promotion's overlapping authority.**
- In addition, factors such as **strict labour regulations, compliance burdens, and a lack of expertise** impede the growth of indigenous defence production. As a result, India has been unable to attract FDI in the defence sector.
- India has four companies among the top 100 largest armaments makers in the world (Indian ordnance factories, Hindustan Aeronautics Limited (HAL), Bharat Electronics Limited (BEL), and Bharat Dynamics Limited (BDL)). These four firms are all government-owned and account for the majority of domestic arms demand. Despite 'Make in India,' **governments have a history of favouring Defense Public Sector Units (DPSUs) above the private sector.**
- The establishment of a manufacturing base **requires significant investment in both cash and technology,** as well as a **lengthy gestation time**. It could take anywhere from ten to even fifteen years for a factory to reach optimum levels of capacity utilisation, and by the time a unit begins production, there could be **changes in the threat assessment/ strategy**, resulting in a complete shift in priorities, or **newer technologies** could render products obsolete.

Areas where Atmanirbhar Bharat has to focus on

- **Vital sub-systems** like engines, guns, missiles, radars, fire-control computers, gear-boxes and transmission are **either imported or assembled under foreign licences.**
- Many of the **critical components are imported** and **spares** continue to come from abroad.
- Attaining genuine "atmanirbharta" require selective identification of vital military technologies in which we are deficient and demands the initiation of well-funded, time-bound, mission-mode projects to develop (or acquire) the "know-how" as well as "know-why" of these technologies.
- The **bureaucracy's incomprehension of military technology** has allowed the defence science establishment to have its way without an iota of accountability for missing time, cost or performance targets.

Why DRDO has not been able to reduce import

- **DRDO** is a **demand-driven organisation**. The organisation's pace and overall direction can both get derailed if there is no overall cohesiveness and stability in the user requirement.
- An unfair equivalence is established between DRDO and the **US** Defence Advanced Research Projects Agency (DARPA). **DARPA** exclusively **works** on **'blue-sky' foundational research projects, independent from any requirements** of the US armed forces, while **DRDO projects are user-defined**. Even **DARPA projects fail and the amounts are written off** – it is a sort of venture capital carrying an element of risk of failures. **Bureaucracy and rigid financial rules does not allow** such risk-taking with public funds in the case of **DRDO**.
- DRDO is only one link in the entire chain of defence development and production. A number of projects successfully developed by DRDO till their validation have been hampered by less than satisfactory quality assurance in the production and the blame has been put on DRDO.
- Some **technologies truly are difficult** to develop and replicate, and **require continuous investment** over years without expectation of immediate

results. The shortcut of reverse engineering is not available. Only when **we turn every failure into learning and a stepping stone for future success** will we be on the right path. Ex: Kaveri engine is not an unmitigated failure as the dry thrust part of the engine has met the required specifications and can be used as a stepping stone for future work.

- **DRDO has to embrace the private sector as a partner.**. Even though the funding is not high, there have been successes with DRDO scientists mentoring MSMEs and startups.

The expanding ecosystem of R&D focussed on defence will add to the successes of DRDO that we see in a number of complex systems such as strategic systems, LCA, missiles, air defence systems, Radar.

The emphasis on Atmanirbhar Bharat together with growing size of R&D funds spent wisely will help achieve the vision of India as an emerging power on the global stage.

Way forward

- DPP 2020 should **incorporate guidelines** to promote forward-looking **strategic partnerships between Indian and foreign companies,** with a view to achieving **indigenisation** over a period of time for even sophisticated platforms. Cost evaluation has to evolve from mechanical application of the L1 (lowest financial bid) principle to **prioritising indigenous content.**
- **Spares, ammunitions and subsystems** must be **manufactured in India** with technology transfer
- **Promotion of Defence Exports**
- Role of DRDO must be revised
- **Private players participation**

Additional Information

1. India's defence exports- https://officerspulse.com/indias-defence-exports/

3) President's Colour

Why in News:

- **President** Ram Nath Kovind **presented the President's colour** to **INS Valsura,** the Navy's premier technological training establishment.

About

- The **President's Colour** is **bestowed** on **any military unit** in **recognition** of the **exceptional service** rendered to the nation, **both in peace and in war.**

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ART AND CULTURE

1) Padma Awards

Why in News:

- The Padma awards have been conferred by the President of India.

About Padma Awards

- The Padma Awards are **one of the highest civilian honours** of India announced annually on the eve of Republic Day.
- The Awards are **given in three categories**: **Padma Vibhushan** (for exceptional and distinguished service), **Padma Bhushan** (distinguished service of higher order) and **Padma Shri** (distinguished service).
- The award seeks to recognize achievements in all fields of activities or disciplines where an element of public service is involved.
- **The Padma Awards are conferred on the** recommendations made by the Padma Awards **Committee**, which is **constituted by the Prime Minister every year.**
- The **nomination** process is **open to the public.**
- Even **self-nomination can be made.**
- The **awards** are **presented by the President of India**
- Padma Awards, which were instituted in the year 1954, are announced every year on the occasion of Republic Day except for brief interruption(s) during the years 1978 and 1979 and 1993 to 1997.
- The award is given in three categories, namely,
    - Padma Vibhushan for exceptional and distinguished service;
    - Padma Bhushan for distinguished service of a high order; and
    - Padma Shri for distinguished service.
- Padma Vibhushan is highest in the hierarchy of Padma Awards followed by Padma Bhushan and Padma Shri.
    - **Highest civilian award of the country is Bharat Ratna.**
- **All persons** without distinction of race, occupation, position or sex are eligible for these awards. However, **Government servants** including those working with PSUs, **except** doctors and scientists, are **not eligible for these Awards.**
    - The Awards are given in the fields of art, social work, public affairs, science and engineering, trade and industry, medicine, literature and education, sports, civil service and other fields.

About Bharat Ratna

- **Bharat Ratna is the highest civilian award** of the country.
- It is awarded in recognition of exceptional service/performance of the highest order in any field of human endeavour.
- It is treated on a different footing from Padma Award.
- The **recommendations** for Bharat Ratna are **made by the Prime Minister to the President of India.**
- **No formal recommendations** for Bharat Ratna a**re necessary.** The number of Bharat Ratna Awards is restricted to a maximum of three in a particular year.

Can a recipient decline a Padma Award?

- The **rules are silent** on this.
- There is **no provision for seeking a written or formal consent** of the recipient before announcement of the award.
- However, before the announcement, **every recipient receives a call** from the **Ministry of Home Affairs** informing him or her about the selection. In case the **recipient expresses a desire** to be **excluded** from the award list, the **name is removed**

PIB ANALYSIS

1) Mission Gaganyaan

About the Mission

- Announced by Prime Minister Narendra Modi in 2018, Gaganyaan is the **first Indian Human Space Flight Programme (HSP)** with the objective to demonstrate the capability to send humans to **low earth orbit** on board an Indian launch vehicle and bring them back to earth safely.
- A **geosynchronous orbit** is a high Earth orbit that allows satellites to match Earth's rotation. Located at 22,236 miles (35,786 kilometers) above Earth's equator, this position is a valuable spot for monitoring weather, communications and surveillance.
- The spacecraft, which is being developed by the **Indian Space Research Organisation (ISRO),** consists of a service module and a crew module, collectively known as the Orbital Module.
- With this, **India could potentially become the fourth country to send a man to space**, after the erstwhile USSR, the US and China. (Denmark also has a manned space flight scheduled for 2022)
- The first of the two pre-Gaganyaan flights with a **humanoid** will be launched soon along with some of the six shortlisted micro-gravity experiments.
- **GSLV Mk III**, the three-stage heavy lift launch vehicle, will be used to launch Gaganyaan as it has the necessary payload capability.
- Recently, Government of India announced that the final crewed Gaganyaan mission will be launched in 2023.

Why in News?

- The current status of Gaganyaan programme is as follows:

1. An **Astronaut training facility** has been commissioned in Bengaluru. Training activities are progressing well at the newly commissioned Astronaut training facility.
2. The design of all systems and sub-systems for Gaganyaan has been completed. Realisation of the same is in different stages of progress.
3. Long duration qualification test of human rated cryogenic engine and First phase testing of human rated **VIKAS Engine** completed. First phase of demonstration tests for Gaganyaan service module propulsion system completed.
4. The MoU, Contracts and Implementation Arrangements (IA) related activities with both national and international agencies are progressing well. The design of various human centric products has been completed and various prototypes are under realization.
5. Roles and responsibility for crew recovery operations and rehearsals finalized. Detailed operational requirements for nominal missions scenarios worked out.
6. The activities related to development of microgravity experiments have commenced. The conceptual design for experiments is under review.

2) Soil Health Card

About the scheme

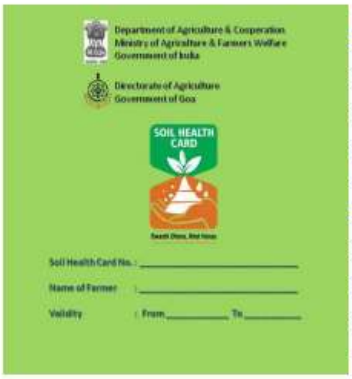
- The Soil Health Card (SHC) scheme is promoted by the **Ministry of Agriculture and Farmers' Welfare** to provide information to farmers on **nutrient status of their soil** along with recommendations on appropriate dosage of nutrients to be applied for improving soil health and its fertility.
- Launched in 2015, it is being **implemented through the**

Department of Agriculture of all the State and Union Territory Governments.

Constituents of a Soil Health Card

- SHC is a printed report that a farmer will be handed over for each of his holdings.
- It will contain the status of his soil with respect to **12 parameters**, namely N, P, K (Macronutrients); S (Secondary-nutrient); Zn, Fe, Cu, Mn, Bo (Micronutrients); and pH, EC, OC (Physical parameters).

N - Nitrogen , P - Phosphorus, K - Potassium, S - Sulphur, Zn - Zinc, Fe - Iron,
Cu - Copper, Mn - Manganese, Bo - Boron, pH - potential of hydrogen, EC - Electrical Conductivity, OC - Organic Carbon.



SOIL HEALTH CARD			Name of Laboratory	
Farmer's Details			**SOIL TEST RESULTS**	
Name				
Address				
Village				
Sub-District				
District				
PIN				
Aadhaar Number				
Mobile Number				
Soil Sample Details				
Soil Sample Number				
Sample Collected on				
Survey No.				
Khasra No. / Dag No.				
Farm Size				
Geo Position (GPS)	Latitude:	Longitude:		
Irrigated / Rainfed				

S. No.	Parameter	Test Value	Unit	Rating
1	pH			
2	EC			
3	Organic Carbon (OC)			
4	Available Nitrogen (N)			
5	Available Phosphorus (P)			
6	Available Potassium (K)			
7	Available Sulphur (S)			
8	Available Zinc (Zn)			
9	Available Boron (B)			
10	Available Iron (Fe)			
11	Available Manganese (Mn)			
12	Available Copper (Cu)			

Secondary & Micro Nutrients Recommendations		
Sl. No.	Parameter	Recommendations for Soil Applications
1	Sulphur (S)	
2	Zinc (Zn)	
3	Boron (B)	
4	Iron (Fe)	
5	Manganese (Mn)	
6	Copper (Cu)	
General Recommendations		
1	Organic Manure	
2	Biofertiliser	
3	Lime / Gypsum	

International Year of Soils 2015

Healthy Soils for a Healthy Life

Fertilizer Recommendations for Reference Yield (with Organic Manure)						
Sl. No.	Crop & Variety	Reference Yield	Fertilizer Combination-1 for N P K		Fertilizer Combination-2 for N P K	
1	Paddy (Dhaan)					
2						
3						
4						
5						
6						

- SHC will be made available once in a **cycle of 3 years**, which will indicate the status of soil health of a farmer's holding for that particular period.
- The SHC will also **indicate fertilizer recommendations and soil amendment required for the farm.**

Benefits of Soil Health Card

- Soil Health Card help the farmers in the following ways:
  - i. The report generated through soil health card scheme encourages **judicious and balanced use of fertilizers.**
  - ii. The report card also suggests **use of bio fertilizers, micronutrients and organic manures to increase soil fertility.**
  - iii. Farmers training and demonstrations on farmers fields, under the scheme creates **awareness among the farmers to increase soil fertility.**
  - iv. The SHC will monitor the soil of the farmers well and will give them a formatted report. So, they can **decide well which crops they should**

cultivate and which ones they should skip.

v. The authorities will **monitor the soil on a regular basis**. So, farmers need not worry if the nature of the soil changes due to certain factors and also they will always have updated data about their soil.

vi. Apart from listing down measures required to improve the quality of the soil, experts are also employed to help farmers in carrying out the **corrective measures.**

Why in the news?

- The Ministry of Agriculture & Farmers' Welfare has released the state-wise number of soil testing laboratories set up under Soil Health Management (SHM) scheme since 2014-15.

News in Depth

AIR NEWS

1) Sujalam 2.0 campaign

What's in the news?

- The **Union Ministry of Jal Shakti** has launched the **Sujalam 2.0 campaign for greywater management.**
- The objective of the campaign is to **manage greywater through people's participation.** Under the campaign, the government plans to mobilize communities, institutions like panchayats, schools, anganwadi to undertake greywater management.
- Over six lakh villages will see intense activity on Solid and Liquid Waste Management.

2) USTAAD

USTTAD (Upgrading the Skills and Training in Traditional Arts/ Crafts for Development)

- The USTTAD Scheme was launched in 2015 to **preserve the rich heritage of traditional arts/crafts of minorities.**
- It is a 100% centrally sponsored scheme implemented by the Ministry of Minority affairs.
- The scheme aims at
    - capacity building and updating the traditional skills of master craftsmen/artisans
    - documentation of identified traditional arts/crafts of minorities; set standards for traditional skills
    - training of minority youths in various identified traditional arts/crafts through master craftsmen; and
    - develop national and international market linkages.

Eligible Trainees/beneficiaries

- The trainee should belong to a minority community. However, to promote inter-community solidarity, **25% candidates belonging to BPL families of non-minority communities** may also be considered. In addition, 3% seats will also be reserved for **differently abled persons** belonging to minority communities.
- The trainee should be between **14-35 years of age**. Upper age limit may be relaxed for differently abled persons belonging to minorities.
- The minimum qualification of a trainee should be at least **Class V.** This may also be relaxed for differently abled persons belonging to minorities.
- More than one member of a family is eligible for training in the same art/craft form, provided she/he fulfills the eligibility criteria.

Why in News?

- The number of beneficiaries under the USTAAD scheme for the year 2016-17, 2017-18 and 2018-19 are 16,200, 3465 and 3465 respectively. The training during the last two years could not be conducted due to Covid pandemic.

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THE HINDU EDITORIALS

1) Realising the potential of 'maitri' and 'mateship'

Background:

- Since India and Australia elevated their relationship in 2020, both the countries have advanced in practical actions on cyber and critical technologies, maritime affairs, defence ties, economic and business links and Quadrilateral cooperation.

Technology and research:

- It will boost **collaboration on innovation, science and entrepreneurship,** to scale up ideas that address global challenges.
- It will help in increasing investments into the rapidly growing space sectors.
- The establishment of **Australia-India Centre of Excellence for Critical and Emerging Technology Policy** will boost the R&D Infrastructure in our country.
- Both countries have made significant inroads on negotiations on a deal that will open new two-way trade and investment opportunities, build more secure supply chains, and unlock complementary economies, increasing the flow of goods, services and people.

Focus on students:

- The **Australia India Future Skills Initiative** will establish a new digital platform, delivered in partnership with industry, to connect Australian vocational education and training (VET) providers, Indian businesses, government, students and employers.
- This complements the Australian government's significant new *Maitri* scholarships and fellowships, giving Indian students and researchers the chance to experience Australia's world class education system.
- Prime Minister Morrison announced a dedicated **Centre for Australia-India Relations** to deepen that friendship between the communities.

Strategic relation:

- The countries are committed to a **free and open Indo-Pacific.**
- Australia has announced initiatives to enhance its engagement in the Northeast Indian Ocean in support of India's natural leadership.

Conclusion:

- These investments in strategic, economic, and community ties show what one can achieve when two multicultural democracies join in a spirit of trust and understanding.

2) Needed, an Indian Legislative Service

Background:

- The appointment of Dr. P.P.K. Ramacharyulu as the Secretary-General of the Upper House by M. Venkaiah Naidu, Chairman of the Rajya Sabha was the first-ever Rajya Sabha secretariat staff who rose to become the Secretary-General of the Upper House.
- However, Ramacharyulu was replaced, bizarrely, by a former bureaucrat, P.C. Mody, in less than three months.

The Secretary-General:

- **Article 98** of the Constitution provides the scope of separate secretariats for the two Houses of Parliament.
- The principle laid in the Article is that the **secretariats should be independent of the executive government.**
- A separate secretariat marks a feature of a functioning parliamentary democracy.
- The Secretary-General, with the **rank equivalent to the Cabinet Secretary, is the third most key functionary of the Rajya Sabha** after the Chairman and the Deputy Chairman.
- The Secretary-General also **enjoys certain privileges** such as freedom from arrest, immunity from criminal proceedings, and any obstruction and breach of their rights would amount to contempt of the House.
- The Secretaries-General of both the Houses are mandated with many

parliamentary and administrative responsibilities.
- One of the prerequisites that demand the post of the Secretary-General is unfailing knowledge and vast experience of parliamentary procedures, practices and precedents.

Conflict of interest:

- When civil servants are hired to the post of Secretary-General, it leads to a conflict of interests.It breaches the principle of separation of power. The officials mandated with exercising one area of power may not expect to exercise the others.
- In a parliamentary polity, one of the roles of Parliament is to watch over the executive's administrative behaviour.
- In other words, Parliament has all the reasons for its surveillance of administration.
- Parliament must have the technical and human resource competency that is on a par with the executive to be an effective body for providing meaningful scrutiny and to make the executive accountable.
- A strong Parliament means a more answerable executive.

Necessary an All India Service:

- There are thousands of legislative bodies in India, ranging from the panchayat, block panchayat, zila parishad, municipal corporations to State legislatures and Union Parliament at the national level.
- Despite these mammoth law-making bodies, they lack their own common public recruiting and training agency at the national level.
- Parliament and State legislative secretariats recruit their pool of bureaucrats separately.
- Ensuring competent and robust legislative institutions demands having **qualified and well-trained staff in place.**
- The growth of modern government and expansion of governmental activities require a matching development and laborious legislative exercise.
- Creating a common all-India service cadre — an **Indian Legislative Service** — is a must.
- A common service can build a combined and experienced legislative staff cadre, enabling them to serve from across local bodies to Union Parliament.
- The Rajya Sabha can, under **Article 312**, pass a resolution to this effect, in national interest, to create an all-India service common to both the Union and the States, and enables Parliament to create such a service by law.

International Practice:

- In the United Kingdom, the Clerk of the House of Commons has always been appointed from the legislative staff pool created to serve Parliament.
- It is high time that India adapts and adopts such democratic institutional practices.

INDIAN EXPRESS EXPLAINED

1) Who are the Bucharest Nine, countries on NATO's eastern flank?

About Bucharest Nine

- The "Bucharest Nine" is a group of nine NATO countries in Eastern Europe that became part of the US-led military alliance after the end of the Cold War.
- The Bucharest Nine or Bucharest Format, often abbreviated as the B9, was founded on November 4, 2015, and takes its name from Bucharest, the capital of Romania.

Composition

- The B9 are, apart from **Romania and Poland, Hungary, Bulgaria, the Czech Republic, Slovakia, and the three Baltic republics of Estonia, Latvia, and Lithuania**.
- All nine countries were once closely associated with the now dissolved Soviet Union, but later chose the path of democracy.
- Romania, Poland, Hungary, and Bulgaria are former signatories of the now dissolved Warsaw Pact military alliance led by the Soviet Union. (The other Warsaw Pact countries were the erstwhile Czechoslovakia and East Germany, and Albania.) Estonia, Latvia, and Lithuania were part of the former Union of Soviet Socialist Republics (USSR).
- All members of the **B9 are part of the European Union (EU) and North Atlantic Treaty Organization (NATO).**

2) The GSAT 7B and India's other military satellites?

Why in the news?

- Recently, the Defence Acquisition Council (DAC) chaired by the Defence Minister cleared the Approval for procurement of a GSAT 7B satellite, along with equipment like Night Sight (image intensifier), 4X4 light vehicles, and Air Defence Fire Control Radar (light).

What are the GSAT 7 series satellites?

- GSAT 7 satellites are advanced satellites developed by the Indian Space Research Organisation (ISRO) to meet the **communication needs of the defence services.**
- The GSAT 7 satellite was launched in 2013 from an Ariane 5 ECA rocket in French Guiana.
- It is a 2,650 kg satellite which has a footprint of nearly 2,000 nautical miles in the Indian Ocean region.
- This satellite is mainly used by the **Indian Navy for its communication needs**.
- The GSAT 7 provides a gamut of services for military communication needs, which includes low bit voice rate to high bit rate data facilities, including multi-band communications. Named Rukmini, the satellite carries payloads in UHF, C-band and Ku-band, and helps the Navy to have a secure, real time communication link between its land establishments, surface ships, submarines and aircraft.
- The satellite was injected into a **geosynchronous transfer orbit (GTO)** of 249 km perigee (nearest point to earth), 35,929 km apogee (farthest point to earth) and an inclination of 3.5 degree with respect to the equator.

What will be the role of the GSAT 7B satellite?

- The GSAT 7B will primarily fulfill the communication needs of the Army. Currently, the Army is using 30 percent of the communication capabilities of the GSAT 7A satellite, which has been designed for the Indian Air Force (IAF).
- The **GSAT 7B will also help the Army enhance its surveillance in border areas**.

What is the role of the GSAT 7A satellite, which is already operational?

- The GSAT 7A was launched in 2018 from the Satish Dhawan Space Centre in Sriharikota, and has gone a long way

in boosting the connectivity between the ground radar stations, airbases and the airborne early warning and control aircraft (AEW&C) of the IAF.
- It also helps in satellite controlled operations of unmanned aerial vehicles (UAVs) which gives a great deal of reliability to the operations as compared to ground controlled operations.
- A GSAT 7C satellite is on the cards for the IAF, and a proposal to this effect was cleared by the DAC in 2021. This satellite would facilitate real time communication with IAF's software defined radio communication sets.

What other kinds of military satellites does India have?

- An Electromagnetic Intelligence Gathering Satellite **(EMISAT)**, developed by ISRO, was launched in April 2020 through a Polar Satellite Launch Vehicle (PSLV-C45).
- It has an Electronic Intelligence (ELINT) package called Kautilya, which allows the interception of ground-based radar and also carries out electronic surveillance across India..
- India also has a **RISAT 2BR1** synthetic aperture radar imaging satellite, which was launched in December 2019 from Sriharikota.

SANSAD TV

1) NLMC: Utilising unused land

Background:

- Prime Minister Narendra Modi approved the setting up of National Land Monetization Corporation to monetise surplus land and building assets of Central Public Sector Enterprises (CPSEs) and other agencies linked to the Government.
- This is to be fully owned by the Centre, under the administrative jurisdiction of the Finance Ministry.
- The NLMC will have an initial authorised share capital of Rs 5,000 crore and paid-up share capital of Rs 150 crore.
- At present, CPSEs hold considerable surplus, unused and under-used non-core assets in the nature of land and buildings.
- With monetisation of these non-core assets, the Government will be able to generate substantial revenues by monetising unused and under-used assets.

CPSE and its surplus land:

- The issue with the CPSE is that the land which they are holding does not entirely belong to them. They are given by the state under certain conditions and if those conditions are not fulfilled the state has the right to take them back.
- Those lands that completely belong to the PSU must be identified and they are to be utilised for monetisation.
- Railway has 4.78 lakh hectares,out of which more than .5 lakh hectare are surplus.
- These lands are along the railway tracks.
- The railways has planned to monetise these lands by allowing the setting up of solar panels along the track and completely generate solar power for railways by 2030.
- Railway has Rail Development Land authority.

Advantages:

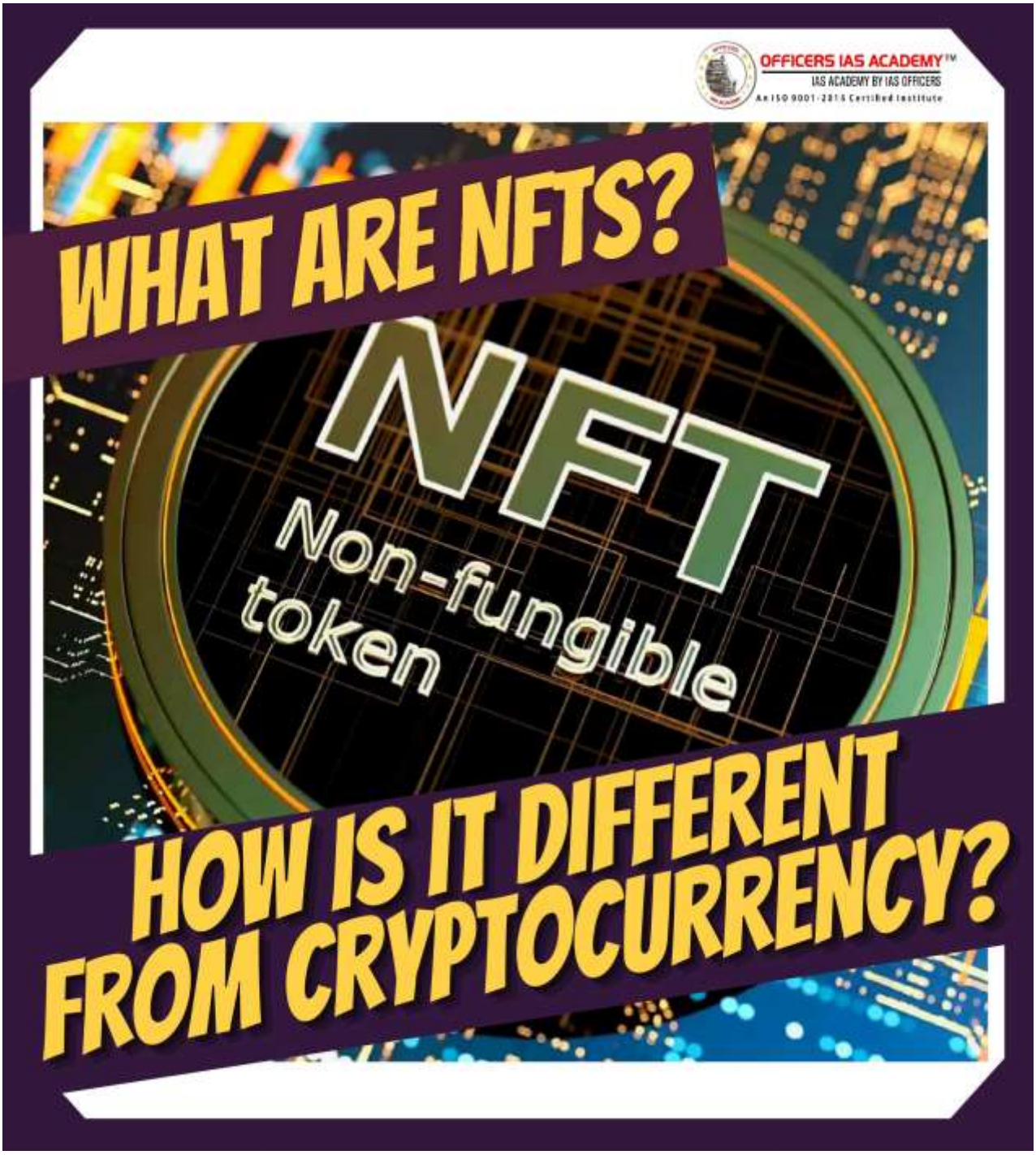
- Monetisation not only brings money to the government but also generates a lot of economic activities.
- It has been given a mandate to hold the land, to own the land, to manage the land and then to monetise the land.
- Better knowledge and presence of technical experts of land and monetisation process.

Challenges:

- The encroachment of CPSE lands is going to be a big challenge.
- The identification of land titles that completely belong to the CPSE is another challenge.
- Dispute resolution might take years in case there is no clear title.
- Demarcation of role between DIPAM (Dept. Of Investment and Public Asset Management) and NLMC.

INFOGRAPHIC OF THE WEEK

1) NON-FUNGIBLE TOKEN



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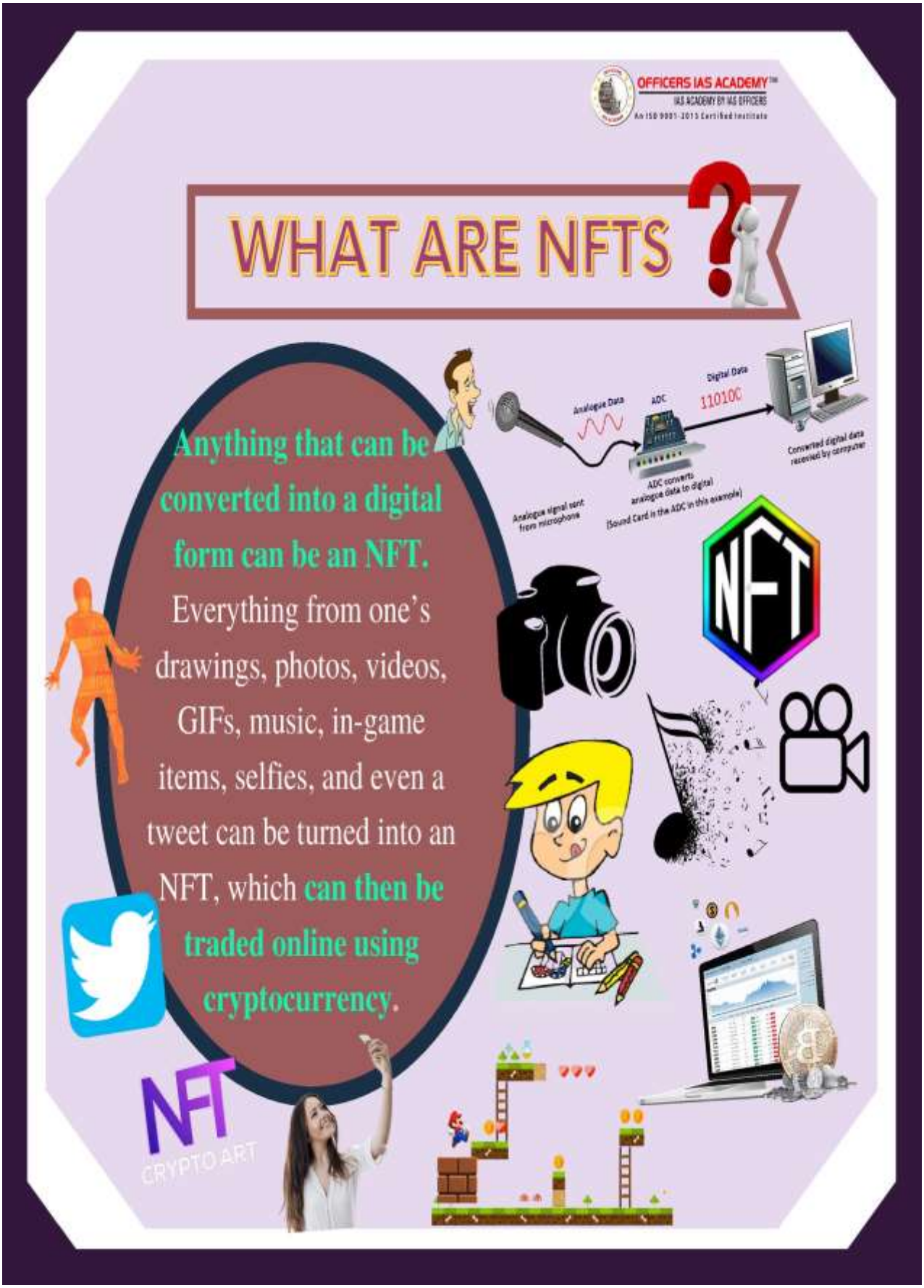

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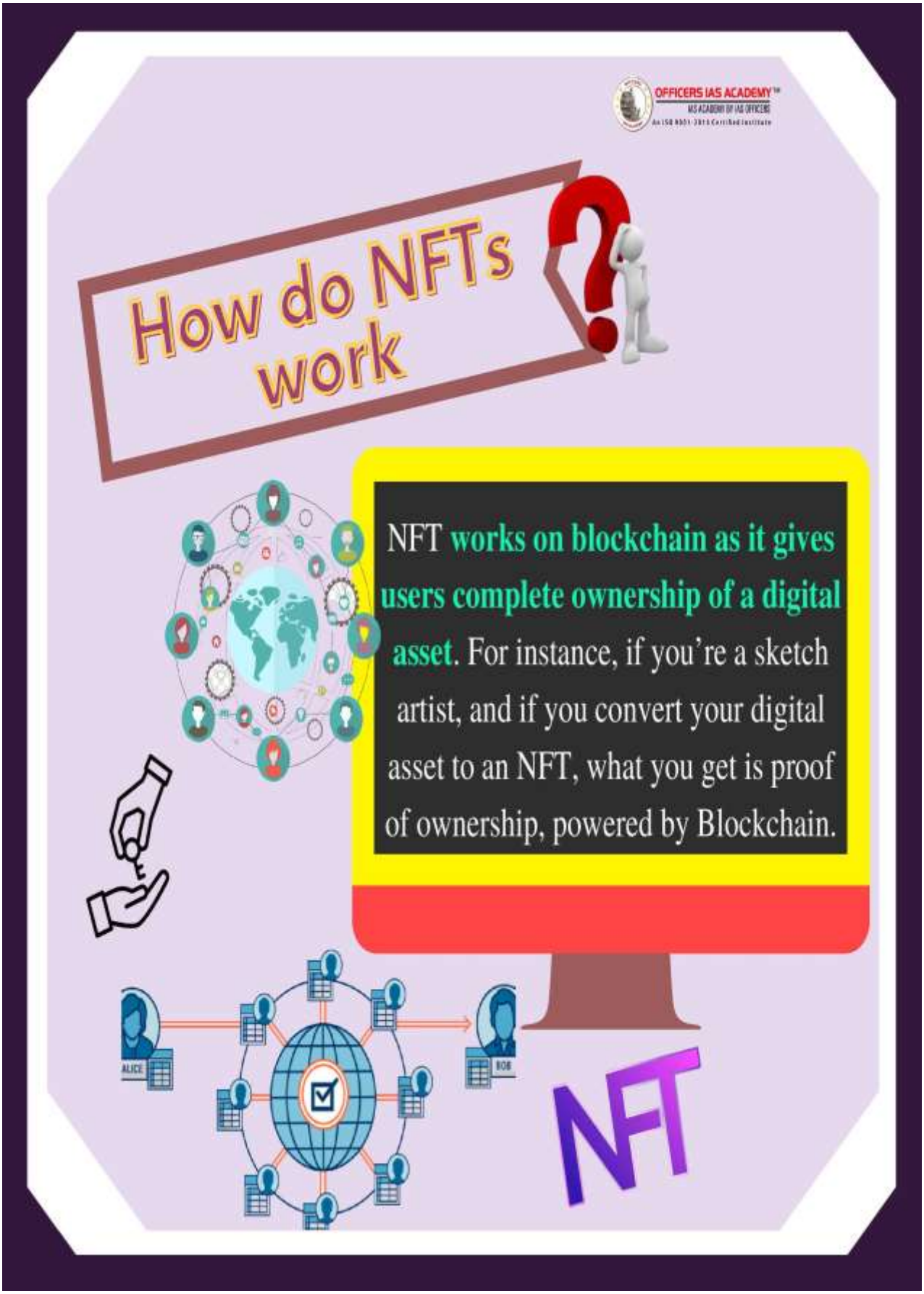

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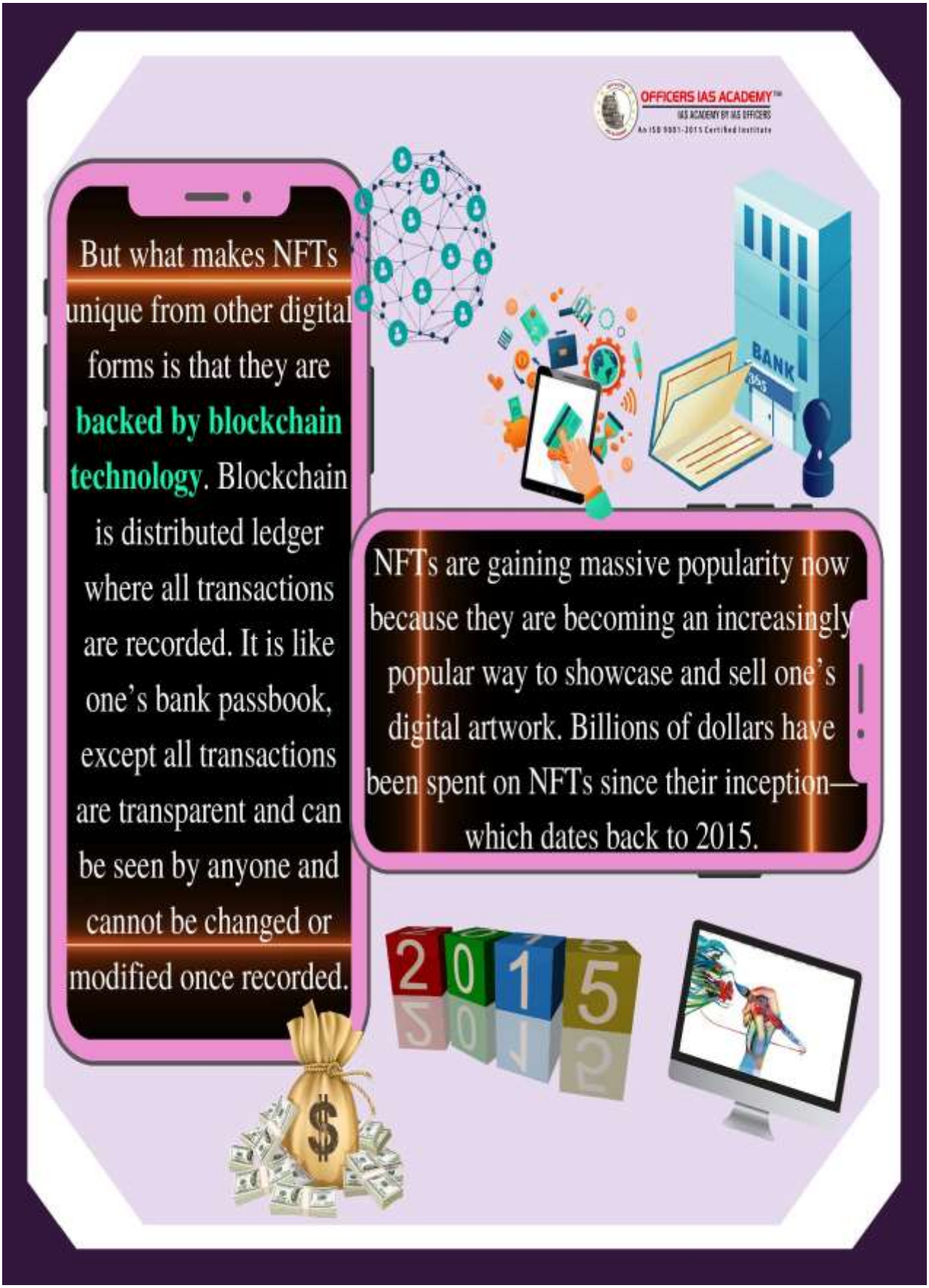

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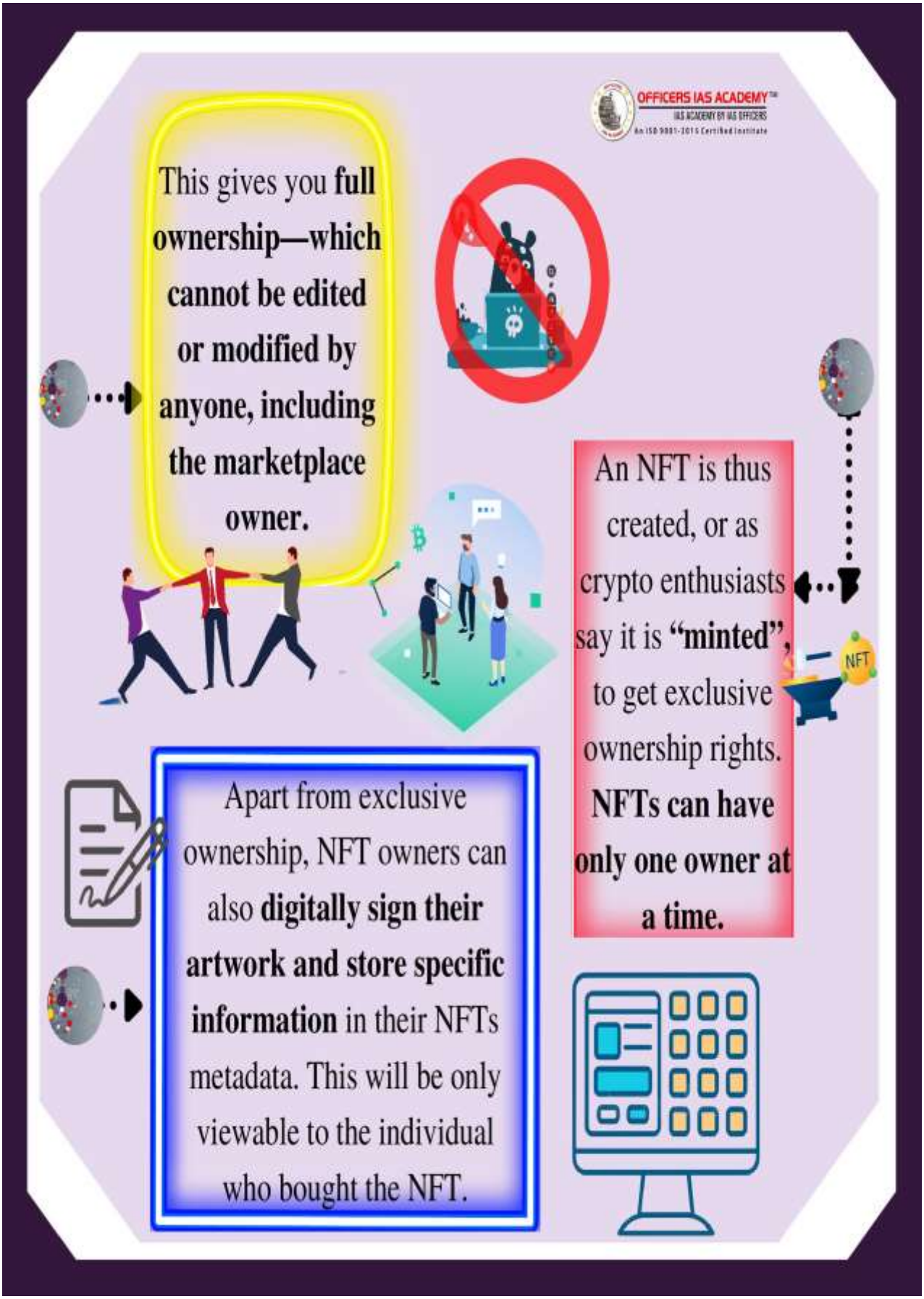

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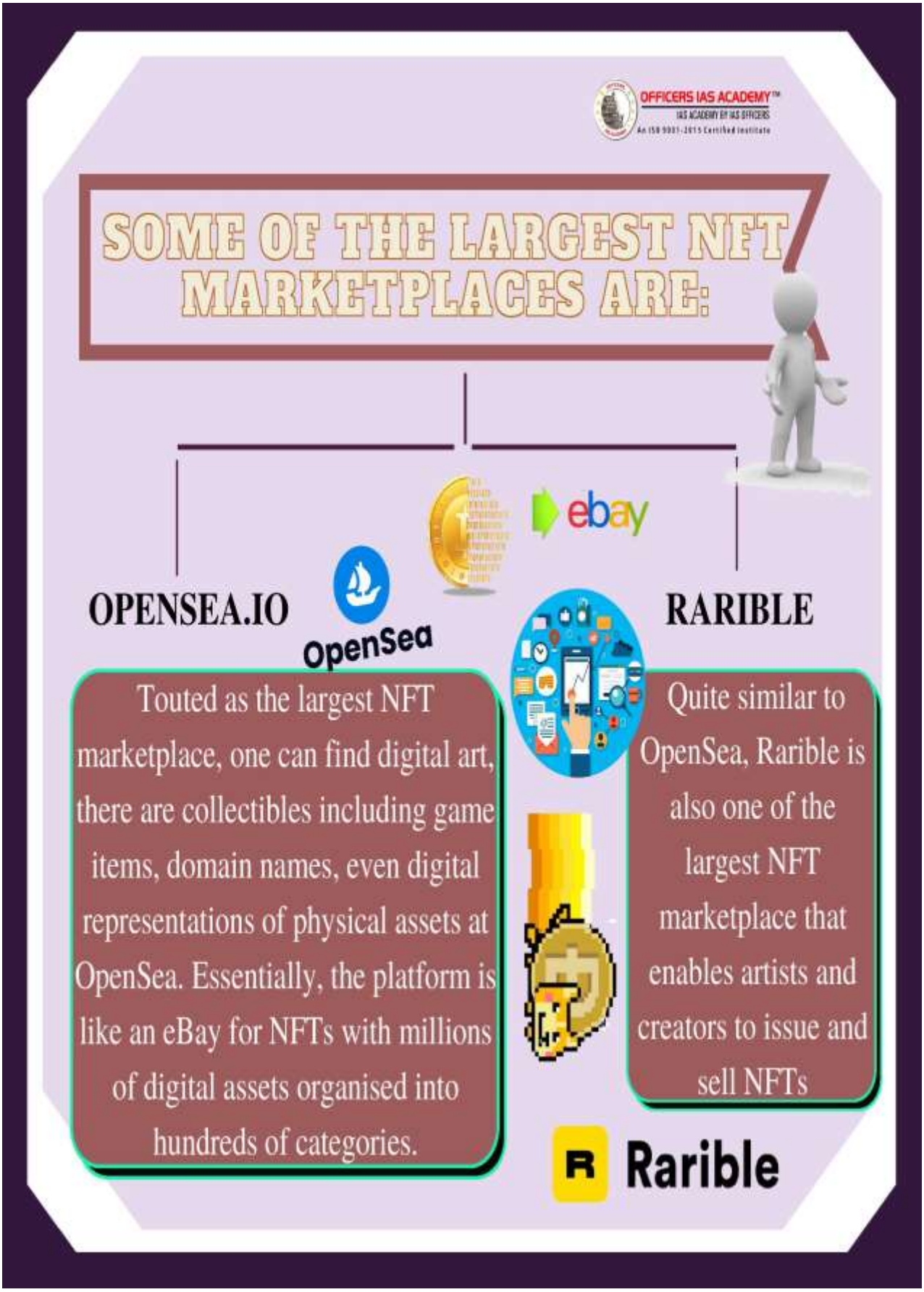

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