

ASTRA

COMPLETE COVERAGE OF MONTHLY CURRENT AFFAIRS

AUGUST 2022



75
Azadi Ka
Amrit Mahotsav

Har Ghar Tiranga
13th-15th August 2022

75
आजादी का
अमृत महोत्सव



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Why in news?

- The Ministry of Culture is organized "Tiranga Utsav".

Tiranga Utsav

- The event will include the release of a commemorative Postal Stamp in recognition of the invaluable contribution to the country followed by the felicitation of his family.
- The Tiranga Utsav will also witness the grand launch of the "Har Ghar Tiranga".
- The cultural evening shall mark a historic day in celebration of India's 75th Azadi Ka Amrit Mahotsav and will be a great tribute to one of the nation's most important figures.

**Pingali Venkayya**

- Pingali Venkayya, a freedom fighter and the designer of India's National Flag was a follower of Gandhian principles, and it was upon the request of Mahatma Gandhi that he designed the Indian National Flag with saffron, white and green colors with chakra in the middle.
- Between 1918 and 1921, Venkayya raised the issue of having an own flag in every session of the Congress. Back then, he was working as a lecturer in the Andhra National College in Machilipatnam.
- He met the Mahatma once again in Vijayawada and showed him his publication with the various designs of the flag. Acknowledging the need for a national flag, Gandhi then asked Venkayya to design a fresh one at the national congress meeting in 1921.
- Initially, Venkayya came up with saffron and green colours, but it later evolved with a spinning wheel at the centre and a third colour-white. (LALA HANS RAJ SONDHJI SUGGESTED ADDING A SPINNING WHEEL — SHOWING THE INDEPENDENT INDIANS WHO CAN SPIN THEIR OWN CLOTHING FROM LOCAL FIBRES.)
- The flag was officially adopted by the Indian National Congress in 1931.

Why in news?

- The Ministry of Culture operates Global Engagement Scheme under which Festivals of India are organized in other countries showcasing folk art and other cultural events as exhibitions, dance, music, theatre, food fest, literary fest, film fest, yoga etc.

About The Scheme

- The Ministry of Culture aims at disseminating Indian Folk Arts and Culture abroad through signing of Cultural Agreements & Cultural Exchange Programme and their implementation by concerned agencies with mutual discussions through diplomatic channels.
- Under this scheme, Ministry of Culture also gives Grant-in-aid to Indo- Foreign Friendship Cultural Societies for organizing programmes and activities including folk art and other cultural activities for their promotion abroad.
- The Government of India has set up seven Zonal Cultural Centers (ZCCs) with headquarters at Patiala, Nagpur, Udaipur, Prayagraj, Kolkata, Dimapur and Thanjavur to protect, preserve and promote various forms of folk art and culture throughout the country.
- The folk artists from all over India are engaged to perform in the festivals and Programmes organized by these ZCCs regularly in all States/Union Territories of India. Besides, the folk artists are also sent abroad to perform in Festivals of India.
- Incentives like Dearness allowance, honorarium, board & lodging, local & international travel are provided to these artists by the respective ZCCs and Ministry of Culture.

Why in news?

- Like Kho-Kho and Kabaddi, Dahi Handi has now been given the status of a game in Maharashtra. It will be considered as a type of adventure sports.

Dahi - Handi

- Dahi Handi is celebrated on the occasion of Janmashtami, the birth of lord Krishna. The Dahi Handi (earthen pots filled with yogurt) is part of the Janmashtami festival where young participants called 'Govindas', dressed in colorful clothes, make a human pyramid to reach the pot hung mid-air, and break it.
- The tradition of Dahi Handi, which started in Mumbai in 1907, is believed to have been going on for the last 104 years in Ghansoli village near Navi Mumbai.
- Dahi Handi was first started here in 1907 on the occasion of Krishna Janmashtami.
- Dahi Handi festival held every year in Mayanagari is celebrated all over the world. Not only the country but people from abroad also come here to see the Dahi Handi festival.

Significance

- Chief Minister Eknath Shinde told that Govindas who join Dahi Handi will be given benefits of government schemes, 5 percent reservation in government jobs.
- Govindas will now also be given insurance protection. If there is an accident while playing Dahi Handi and any Govinda dies in such a situation, then an amount of Rs 10 lakh will be given to the family members of the concerned Govinda as help.
- In case of serious injury like if any Govinda loses both eyes or both legs or both hands or any two important parts of the body, then an amount of 7 and a half lakh rupees will be given to him as help from the state government.
- In such an accident, if any Govind loses an arm or a leg or any part of the body, then in such a situation, an amount of 5 lakh rupees will be given to him as help.

Why in news?

- Garba is a form of dance, as well as a religious and social event that originated in Gujarat. If approved for the list, it will become the first intangible cultural heritage of Gujarat to be listed by UNESCO.

Garba

- It is a type of Indian dance form mainly performed at festivals and other special occasions in Gujarat state, India. It is also spelled as garaba, singular garbo.
- This style of dance is based on a circular pattern and is characterised by a sweeping action performed side to side.
- The performances of Garba also include singing and musical accompaniment traditionally provided by dhol and similar but smaller dholak, hand-clapping, and assorted metallic idiophones, like cymbals.

Historical background

- Garba originated from the Sanskrit word Garbha meaning the womb.
- Customarily, this dance form in Gujarat marks a girl's first menstrual cycle and later, her imminent marriage.
- It is also performed during the nine-day Navratri festival which is held annually during the month of Ashwin (September or October).
- On some occasions, men also participate but women are the main performers of Garba.

Significance

- The dance form of Garba celebrates fertility, honour womanhood, and pays respect to all nine forms of mother goddesses.
- The performance of Garba has spread beyond Gujarat to enjoy popularity not only in various parts of India but in Hindu communities across the world.

Mandala Art

History & Culture

- Mandala patterns are a centuries-old motif that are used to depict the cosmos, and have been adapted by artists the world over, each of whom have added their own interpretation and painted it as their own.
- Literally meaning "circle" or "centre" in Sanskrit, mandala is defined by a geometric configuration that usually incorporates the circular shape in some form. While it can also be created in the shape of a square, a mandala pattern is essentially interconnected.
- It is believed to be rooted in Buddhism, appearing in the first century BC in India. Over the next couple centuries, Buddhist missionaries travelling along the silk road took it to other regions.
- By the sixth century, mandalas have been recorded in China, Korea, Japan, Indonesia and Tibet. In Hinduism, the mandala imagery first appeared in Rig Veda (1500 – 500 BCE).

Bangladeshi Fahmida Azim won the Pulitzer Prize 2022

History & Culture

Why in news?

- Bangladesh-born Fahmida Azim working for the Insider online magazine of the US has been selected for the Pulitzer Prize 2022.
- Fahmida is honored for an illustrated report entitled "How I Escaped a Chinese Internment Camp" along with her winning team members Anthony Del Col, Josh Adams and Insider's Walt Hickey in New York.

Fahmida Azim

- Fahmida Azim was born in Bangladesh and settled in America. His work focuses on themes of identity, culture and autonomy.
- His works have been published in many international magazines like NPR, Glamour, Scientific American, The Intercept, Vice, The New York Times.
- She has also illustrated several books, including her own stereotype-shattering project Muslim Women Are Everything.
- Apart from her professional pursuits, Fahmida loves real people living extraordinary lives, imaginary people living beautiful ordinary lives and enjoying food.

Pulitzer Prize

- Pulitzer Prize is an award that is given for achievements in newspapers, magazines, musical composition, online journalism, and literature.
- This prize was established in the year 1917 by the provisions that were written in the will of Joseph Pulitzer. Columbia University administers this prize.
- These prizes are being given annually in 21 categories. In 20 categories, the winners each receive USD 15,000 and a certificate. The winner in the prize's Public Service Category receives a gold medal.

Indian Institute of Heritage (IIH)

History & Culture

Why in news?

- Government have decided to set up 'Indian Institute of Heritage' (IIH) as a Deemed to be University as per UGC (Institutions deemed to be Universities) Regulations, 2019 at Noida, Gautam Buddha Nagar, Uttar Pradesh.

About IIH

- Indian Institute of Heritage will be a world-class university
- IIH would offer Masters and Ph.D courses in History of Arts, Conservation, Museology, Archival Studies, Archaeology
- Indian Institute of Heritage will be a world-class university that would focus on the conservation and research in India's rich tangible heritage, while offering research, development and dissemination of
- knowledge, excellence in the education of its students and activities associated with heritage that contribute to the cultural, scientific and economic life of India.
- This would be a standalone Institution of its type in the country.



Why in news?

- 106-year-old astronomical observatory at the Langat Singh College, Muzaffarpur in Bihar has been added to UNESCO World heritage observatories list. This observatory is first of its kind in eastern part of India.

About Astronomical Observatory

- The Astronomical Observatory in Muzaffarpur was established in 1916 give detailed astronomical knowledge to students.
- Prof Romesh Chandra Sen took initiative to set up the astronomical observatory at the college. In 1914, he talked to an astronomer J Mitchell for guidance.
- In 1915, telescope, chronograph, astronomical clock, and other equipment were procured from England.
- Finally in 1916, astronomical observatory was started.
- In 1946, a planetarium was also established in the college.

UNESCO World Heritage sites

- Sites of cultural and natural importance worldwide are recognised under the UNESCO World Heritage Convention.
- This convention was established in 1972. In India, there are 40 World Heritage Sites, making it the country with 6th largest number of World Heritage Sites.
- It includes 32 cultural sites, 7 natural sites and 1 mixed site.
- The Jantar Mantar in Jaipur is also included among UNESCO World Heritage site.
- Jantar Mantar is a collection of 19 astronomical instruments, constructed by king Sawai Jai Singh II.
- It also features the largest stone sundial of the world.



Why in news?

- According to a landmark UN decision, every individual on Earth has the right to live in a clean, healthy environment.

About declaration

- The UN resolution has underlined that Climate change and environmental degradation are the most critical threats awaiting humanity in the future.
- The newly recognised right will be crucial to tackling the triple planetary crisis. This refers to the three main interlinked environmental threats that humanity currently faces: climate change, pollution and biodiversity loss – all mentioned in the text of the resolution.
- The landmark development demonstrates that the member states can unite in the collective fight against the triple planetary crisis of climate change, biodiversity loss and pollution.
- The resolution will help to reduce environmental injustices and protection gaps.
- The declaration sheds light on almost all the rights connected to the health of our environment.
- This right was not included in the Universal Declaration of Human Rights, 1948. So, this is a historic resolution that will change the very nature of international human rights law
- Some 50 years ago (in 1972), the United Nations Conference on the Environment in Stockholm concluded with a resolution placing environmental issues at the global forefront

75 Ramsar Sites in 75th Year of Independence

Ecology & Environment

Why in news?

- Government has added 11 more wetlands to the Ramsar list of wetlands.

Ramsar Sites

- Ministry of Environment, Forests and Climate Change said, the 11 new sites include, four in Tamil Nadu, three in Odisha, two in Jammu and Kashmir and one each in Madhya Pradesh and Maharashtra.
- Designation of these sites would help in conservation and management of wetlands and wise use of their resources.

Ramsar Convention

- India is one of the Contracting Parties to Ramsar Convention, signed in Ramsar, Iran in 1971. India signed it on 1st February 1982.
- During 1982 to 2013, a total of 26 sites were added to the list of Ramsar sites, however, during 2014 to 2022, the country has added 49 new wetlands to the list of Ramsar sites.
- During this year itself, a total of 28 sites have been declared as Ramsar sites. Based on the date of designation mentioned on Ramsar Certificate, the number is 19 for 2022 and 14 for 2021.
- Tamil Nadu has maximum number of Ramsar sites which is 14, followed by Uttar Pradesh which has 10 numbers of Ramsar sites.



Tampara Lake (Odisha)

- Tampara Lake is among the most prominent freshwater lakes in the State of Odisha.
- It is called 'Tampara' as the depression on the ground gradually filled with rainwater from catchment flow and was called 'Tamp' by the British and subsequently termed 'Tampara' by the locals.

- The wetland is an important habitat for vulnerable species such as Cyprinus carpio, common pochard (Aythya ferina), and river tern (Sterna aurantia).
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Chitrangudi Bird Sanctuary (Ramanathapuram, Tamil Nadu)

- The wetland is a protected area since 1989 and declared a Bird Sanctuary.
- It is an ideal habitat for winter migratory birds.

Suchindram Theroor Wetland Complex (Kanya Kumari, Tamil Nadu)

- It is part of the Suchindram-Theroor Manakudi Conservation Reserve.
- It is declared an Important Bird Area and lies at the southern tip of the Central Asian flyway of migratory birds.
- This is a man-made, inland Tank and is perennial.
- Copper plate inscriptions from the 9th century mention Pasumkulam, Venchikulam, Nedumarthukulam, Perumkulam, Elemchikulam and Konadunkulam.

Agasthyamalai is a new Elephant Reserve

Ecology & Environment

Why in news?

- The Tamil Nadu government has announced that a new elephant reserve will be established in Tirunelveli and Kanyakumari districts.

About Agasthyamalai Biosphere Reserve (ABR)

- ABR is situated at the southern-most end of the Western Ghats and spread over two southern states Kerala and Tamil Nadu.
- It is named after the Agastya Mala peak that rises up to almost 1868 metres above sea level, in Thiruvananthapuram, Kerala.
- In March 2016, it was included in the World Network of Biosphere Reserves of UNESCO.
- It covers Peppara and Shendurney wildlife sanctuaries and parts of the Neyyar sanctuary in Kerala and the Kalakad Mundanthurai Tiger Reserve of Tamil Nadu.
- It is home to the Kanikaran tribe, one of the oldest surviving ancient tribes in the world.
- This will be the 5th elephant reserve in the state.

Unauthorised use of Highly Hazardous Pesticides

Ecology & Environment

Why in news?

- Safety of agricultural produce and environmental contamination is at risk due to the rampant use of four highly hazardous pesticides (HHP), according to a recent report.

Findings of the report

- Unapproved and unauthorised use of the agrochemicals — chlorpyrifos, fipronil, atrazine and paraquat — was found across the country.
- The report, titled State Of Chlorpyrifos, Fipronil, Atrazine and Paraquat Dichloride in India, was developed by Pesticide Action Network (PAN), a non-profit that works on eliminating human and environmental hazards caused by pesticides.
- A field study was conducted in seven states: Andhra Pradesh, Jharkhand, Himachal Pradesh, Karnataka, Tamilnadu, Telangana and West Bengal.



Reported Pesticides are

- Chlorpyrifos (to control soil-borne insect pests)- It is known to cause brain damage and is banned in many countries.
- Fipronil (to control ants, beetles, and fleas)
- Atrazine (to control grasses and weeds before they emerge)
- Paraquat (a herbicide to control grasses and weeds)

Indus Dolphin added to List of Endangered Species

Ecology & Environment

Why in news?

- The state's efforts to protect and conserve threatened Indus river dolphin has got the much-needed boost, as the aquatic mammal has been included in Schedule I of the Wildlife (Protection) Act, 1972.
- The Indus river dolphin was declared the State aquatic animal of Punjab in 2019.

About Indus Dolphin

- **Scientific Name:** *Platanista gangetica minor*
- According to a recent study of South Asian river dolphins, Indus and Ganges River dolphins are not one, but two separate species. Currently, they are classified as two subspecies under *Platanista gangetica*.
- Like other freshwater dolphins (such as Ganges river dolphins), the Indus river dolphin is an important indicator of the health of a river.
- Other dolphins found in Indian waters include: Ganges River Dolphins, Irrawaddy dolphins.

Conservation Status

- International Union for the Conservation of Nature (IUCN): Endangered.
- Convention on International Trade in Endangered Species (CITES): Appendix I
- Indian Wildlife (Protection), Act 1972: Schedule I

India's updated Nationally Determined Contribution (NDC) to UNFCCC

Ecology & Environment

Why in the news?

- Recently, the Union Cabinet has approved India's updated Nationally Determined Contribution (NDC) to be communicated to the United Nations Framework Convention on Climate Change (UNFCCC).

India's updated NDCs

New targets:

- As per the updated NDC, India now stands committed to reduce Emissions Intensity of its GDP by 45 percent by 2030, from 2005 level and achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.
- The approval, also takes forward the Prime Minister's vision of sustainable lifestyles and climate justice to protect the poor and vulnerable from adverse impacts of climate change.
- The updated NDC reads "To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation, including through a mass movement for 'LIFE'– 'Lifestyle for Environment' as a key to combating climate change".
- The decision on enhanced NDCs demonstrates India's commitment at the highest level for decoupling of economic growth from greenhouse gas emissions.
- India's updated NDC has been prepared after carefully considering our national circumstances and the principle of common but differentiated responsibilities and respective capabilities (CBDR-RC). India's updated NDC also reaffirms our commitment to work towards a low carbon emission pathway, while simultaneously endeavoring to achieve sustainable development goals.
- Recognizing that lifestyle has a big role in climate change, the Prime Minister of India, at COP 26, proposed a 'One-Word Movement', to the global community. This one word is LIFE...L, I, F, E, i.e. Lifestyle For Environment.

- The vision of LIFE is to live a lifestyle that is in tune with our planet and does not harm it. India's updated NDC also captures this citizen centric approach to combat climate change.
- The updated NDC also represents the framework for India's transition to cleaner energy for the period 2021-2030.
- The updated framework, together with many other initiatives of the Government, including tax concessions and incentives such as Production Linked Incentive scheme for promotion of manufacturing and adoption of renewable energy, will provide an opportunity for enhancing India's manufacturing capabilities and enhancing exports.
- It will lead to an overall increase in green jobs such as in renewable energy, clean energy industries- in automotives, manufacturing of low emissions products like Electric Vehicles and super-efficient appliances, and innovative technologies such as green hydrogen, etc.
- India's updated NDC will be implemented over the period 2021-2030 through programs and schemes of relevant Ministries /departments and with due support from States and Union Territories.
- The Government has launched many schemes and programs to scale up India's actions on both adaptation and mitigation.
- Appropriate measures are being taken under these schemes and programs across many sectors, including water, agriculture, forest, energy and enterprise, sustainable mobility and housing, waste management, circular economy and resource efficiency, etc.
- As a result of the aforesaid measures, India has progressively continued decoupling of economic growth from greenhouse gas emissions.
- The Net Zero target by 2030 by Indian Railways alone will lead to a reduction of emissions by 60 million tonnes annually.
- Similarly, India's massive LED bulb campaign is reducing emissions by 40 million tonnes annually.
- India's NDC do not bind it to any sector specific mitigation obligation or action.
- India's goal is to reduce overall emission intensity and improve energy efficiency of its economy over time and at the same time protecting the vulnerable sectors of economy and segments of our society.

Nationally determined contributions

- Intended Nationally Determined Contributions (INDC) are reductions in greenhouse gas emissions under the United Nations Framework Convention on Climate Change (UNFCCC).
- **All countries that signed the UNFCCC were asked to publish their INDCs at the 2013 United Nations Climate Change Conference held in Warsaw, Poland, in November 2013**
 - **Under the Paris Agreement, adopted in December 2015, the INDC will become the first Nationally Determined Contribution (NDC)** when a country ratifies the agreement unless it decides to submit a new NDC at the same time.
 - Nationally determined contributions (NDCs) are at the heart of the Paris Agreement and the achievement of these long-term goals.
- **NDCs** embody efforts by each country to reduce national emissions and adapt to the impacts of climate change.
- The Paris Agreement (Article 4) requires each Party to prepare, communicate and maintain successive nationally determined contributions (NDCs) that it intends to achieve.
- Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.
- The Paris Agreement requests each country to outline and communicate their post-2020 climate actions, known as their NDCs.

Giant meteorite impacts could be responsible for Continents formation

Ecology & Environment

In News

- Earth's continents were formed by massive meteorite impacts that were prevalent during the first billion years of our planet's four and a half billion-year history, according to a new study.

About the study

- The researchers looked for **evidence in zircon crystals embedded in rocks** from the Pilbara Craton in Western Australia. This craton is the remnant of an ancient crust that began forming more than three billion years ago.

- A craton is an **old and stable part** of the continental lithosphere, which consists of Earth's two topmost layers, the crust and the uppermost mantle.
- Studying the composition of oxygen isotopes in these zircon crystals revealed a 'top-down' process starting with the melting of rocks near the surface and progressing deeper, consistent with the geological effect of giant meteorite impacts.
- Zircons are formed by the crystallisation of magma or are found in metamorphic rocks. They act as tiny time capsules, recording the period of geologic activity. Newer zircon adds to the original crystal as time progresses.

Significance

- Understanding the formation and evolution of continents is important, as it is the key to reserves of metals such as lithium, tin and nickel.
- Most of Earth's biomass and most humans live on these landmasses, so understanding how continents form and evolve is crucial.

Theory of plate Tectonics

- Alfred Wegener in his paper in 1912 hypothesized that all of the modern-day continents had previously been clumped together in a supercontinent he called Pangaea.
- Over 200 million years, the continents had drifted apart. This was called continental drift theory.
- But it was widely ridiculed as a mere hypothesis.
- It was only in the 1960s, when technologies had developed that the validity of his theory was proved and further enhanced by McKenzie and Parker, through their theory of plate tectonics.

Fungus for Pyrene Remediation

Ecology & Environment

Why in the news?

- Researchers at the Council of Scientific & Industrial Research-Indian Institute of Petroleum (CSIR-IIP), Dehradun, have recently identified a fungus for pyrene remediation.

Key findings-

- The fungus identified by the researchers is capable of removing toxic, recalcitrant, and carcinogenic polycyclic aromatic hydrocarbons (PAHs) from the environment.
- **The PAHs are ubiquitous environmental pollutants originating from multiple sources, including combustion of petrogenic fossil fuels, and incomplete incineration of municipal wastes and biomass.**
- **Pyrene, possessing four benzene rings, belongs to the highly toxic class of PAHs, with carcinogenic and mutagenic properties.**
- **It gets lodged into the environmental matrices like soil, water and atmosphere, resulting in widespread environmental pollution, necessitating adequate remediation of contaminated environmental matrices.**
- **The researchers at IIP identified a white-rot fungus *Trametes maxima* IIPLC-32, which has the potential to cause microbial degradation of pyrene.**
- According to researchers, growing on dead plants, **this fungus causes pyrene degradation using special enzymes.**
- The researchers used gas chromatographic-mass spectrometer and serotome analysis for their study.
- Gas chromatographic-mass spectrometric identification of prominent metabolites helped determine the pyrene degradation pathway.
- As found by researchers, pyrene concentration decreased within 16 days from the initial levels of 10 mg per litre.
- The serotome analysis revealed the presence of 81 **extracellular proteins**. Knowledge of serotome analysis in pyrene degradation helped understand the degradation mechanism of pyrene.
- It may be noted that among the pollutants found in the soil, many PAHs are also present.
- **The fungus identified by the researchers can cause microbial degradation, thereby improving the soil quality.**
- **As revealed by the study, the fungus *T. maxima* may prove to be helpful in the remediation of especially pyrene.**
- The recommendation from the study is that *T. maxima* IIPLC-32 can be tried in the future for the bioremediation of PAH-contaminated aquatic environments.

In News

- State-run explorer Oil and Natural Gas Corporation (ONGC) will be participating to generate electricity through Geothermal Energy at Puga, a remote valley located in Ladakh, off the road to Chumar on the de-facto border with China.

About the project

- It will be India's first geothermal energy project and also the world's highest at 14,000ft.
- ONGC has started drilling its first well for the project and encountered high-pressure steam at 100 degrees Celsius with a discharge rate of 100 tonne geothermal energy per hour, considered as a good sign for the project.

Puga valley

- Puga Valley is situated in the Changthang Valley in the south-eastern part of Ladakh, about 22 km away from the Salt Lake Valley.
- It is a region of great significance known for its natural beauty and geothermal activities.
- Puga is also visited for its hot sulphur spring.

Significance

- It will boost Ladakh's potential to emerge as one of the country's clean energy bowl by expanding the area's horizon beyond solar or wind power.
- The pilot plant provides power and heating needs of the nearby settlements of Tibetan pastoralist refugee settlements at Sumdo and nearby areas.
- A bigger plant will provide 24X7 supply for the far-flung settlements and the large defence establishment in the eastern sector, reducing their dependence on diesel for running generators.
- The plant can also play a vital role as a stabiliser for the 15-gigawatt solar/wind project being planned in the nearby Morey plains in the southwest.

GeoThermal Energy

- Geothermal energy is the heat from the earth. This heat is used for bathing, to heat buildings, and to generate electricity.
- The word geothermal comes from the Greek words geo (earth) and therme (heat), and geothermal energy is a renewable energy source because heat is continuously produced inside the earth.
- Hot water or steam reservoirs deep in the earth are accessed by drilling.
- Geothermal reservoirs located near the earth's surface, mostly located in the western U.S., Alaska, and Hawaii.
- The shallow ground near the Earth's surface that maintains a relatively constant temperature of 50-60°F.

In News

- As per the recent study, a bright explosion born out of the cosmic dance of a white dwarf and its companion star resulting in thick dust around an imploding novae could unravel mysteries behind the start of life.

Novae

- A nova is an astronomical event in which a strong explosion occurs temporarily, thus increasing the brightness and then slowly darkening over weeks or months.
- It generally occurs in a binary system (two stars orbiting around a common centre of mass) consisting of a white dwarf and a main sequence star.
- Space dust out of collisions may have propelled organisms over enormous distances between planets to start life on a planet.
- It has been observed only in a few novae within 30 to 100 days after an outburst, as compared to interstellar dust, which typically takes a few thousand years to form and hence provided opportunity to study the dust formation process in novae.

Why in the news?

- The Energy Conservation (Amendment) Bill, 2022 was introduced in Lok Sabha on August 3, 2022.

About energy Conservation bill

- The Energy Conservation (Amendment) Bill seeks to increase India's demand for renewable energy, thereby reducing the nation's carbon emissions.
- The Bill proposes to amend the Electricity Conservation Act 2001, last amended in 2010, to introduce changes such as incentivizing the use of clean energy by issuing carbon saving certificates. Some of the major changes proposed were;
 - Defining the minimum share of renewable energy to be consumed by industrial units or any establishment. This consumption may be done directly from a renewable energy source or indirectly via the power grid.
 - Incentivizing efforts to use clean energy by issuing carbon-saving certificates
 - Strengthening institutions set up originally under the Act, such as the Bureau of Energy Efficiency
 - Facilitating the promotion of green Hydrogen as an alternative to the fossil fuels used by industries
 - Considering additional incentives like carbon credits for the use of clean energy to lure the private sector to climate action.
- The Bill gives the central government the authority to set standards for energy usage.
- The Bill further states that the designated consumers may be required to meet a minimum percentage of their energy needs from non-fossil sources.
- Including larger residential buildings under energy conservation standards to promote sustainable habitats. Currently, only large industries and their buildings come under the ambit of the Act.
- It gives the State Electricity Regulatory Commissions (SERCs) the authority to enforce its regulations. The Bill also states that SERCs may create regulations for carrying out their duties.

Energy Conservation Act, 2001-

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

Stockholm World Water Week 2022**Ecology & Environment****Why in news?**

- National Mission for Clean Ganga hosts virtual session on the first day of the Stockholm World Water Week 2022.

World Water Week

- World Water Week is the leading annual event on global water issues, organized by 'Stockholm International Water Institute' (SIWI) since 1991.
- The theme for World Water Week 2022 is "**Seeing the Unseen: The Value of Water.**"
- In 1991, a public water festival was held in Stockholm city to celebrate the fact that it was again possible for them to fish and swim in the city.
- As part of this festival, a water conference was held, named Stockholm Water Symposium, attended by leading scientists.
- It is this symposium which became World Water Week.

Arth Ganga

- The central idea of "Arth Ganga" is linking people and Ganga through the bridge of economics in line with the slogan of "Banking on River Ganga".
- Arth Ganga Model strives to contribute at least 3 percent of the GDP from the Ganga Basin itself.
- Livelihood Generation Opportunities such as 'Ghat Mein Haat', promotion of local products, Ayurveda, medicinal plants, capacity building of volunteers like Ganga Praharis is also being done under Arth Ganga.



Why in the news?

- Private players are free to use drones for delivery purposes subject to compliance with Drone Rules, 2021.

Drones Rules 2021

- The **Ministry of Civil Aviation has notified the Drone Rules, 2021.**
- These Rules were published under the Aircraft Act, 1934 and replaced the Unmanned Aircraft System (UAS) Rules, 2021.
 - The 1934 Act regulates the production, possession, operation, and sale of civilian aircraft in India.
 - The Rules regulated the ownership and operation of remotely operable and autonomous aircraft in India.
- **It reduced the approvals and restrictions involved in operating drones in India.**
- The **Drone Rules 2021 remove the requirement of any certificate for operating or importing drones.**
- The import of drones will be regulated by the Director-General of Foreign Trade (or any other entity authorised by the Union government).
- The Rules mandated seeking approval from the Director-General for the transfer of drones to another person in India.
- Digital sky platform refers to the online platform hosted by the DGCA for various activities related to the management of unmanned aircraft system activities in India.
- The central government publishes a dynamic, machine-readable, airspace map for drone operations in India.
 - The map will segregate the Indian airspace into red, yellow, and green zones. Prior permission will be required for drone operations in red and yellow zones.
- The **digital sky platform shall be developed as a business-friendly single-window online system.**
 - There will be a minimal human interface on the digital sky platform and most permission will be self-generated.
- The yellow zone was reduced from 45 km to 12 km from the airport perimeter.
- No flight permission is required up to 400 feet in green zones and up to 200 feet in the area between 8 and 12 km from the airport perimeter.
- **No pilot licence is required for micro drones (for non-commercial use), nano drones and R&D organisations.**
- Coverage of drones under Drone Rules, 2021 **increased from 300 kg to 500 kg.** This will cover drone taxis also.
- The DGCA shall prescribe training requirements, oversee drone schools and provide pilot licenses online.
- Manufacturers may generate their drone's unique identification number on the digital sky platform through the self-certification route.
- The **maximum penalty under Drone Rules, 2021 was reduced to INR 1 lakh.**
- Drone corridors will be developed for cargo deliveries.
- A drone promotion council to facilitate a business-friendly regulatory regime.

Other Drone Reforms

- Liberalised Drone Rules, 2021 was notified in August 2021.
- Drone Airspace Map has opened up nearly 90% of the Indian airspace area as the green zone for drones flying up to 400 feet.
- The production-Linked Incentive (PLI) scheme for drones was notified.
- UAS Traffic Management (UTM) Policy Framework was released.
- A monetary grant program for the purchase of agricultural drones was announced.
- Drone certification scheme to obtain type certificates by drone manufacturers.
- Mission 'Drone Shakti' was announced for supporting drone startups.
- A drone import policy has been published, banning the import of foreign drones.
- Drone (Amendment) Rules, 2022 has abolished the requirement of a drone pilot licence.

Why in the news?

- Government has proposed a new framework for regulating e-waste in India that may upset informal sectors.

E-waste

- E-Waste refers to all items of electronic and electrical equipment (EEE) and its parts that have been discarded by their owner as waste without the intent of re-use. India is the third-largest e-waste generator in the world after China and the USA (Global E-waste Monitor 2020).

Status of E-waste in India

- One of the fastest-growing waste streams in the world
- 95% of e-waste in India is recycled by the informal sector

Concerns

- Under E-Waste Management Rules 2016, it is mandatory for the organization to comply with the Extended producer responsibility of recycling e-waste. Complying with that, most firms outsourced recycling to organizations called Producer Responsibility Organization (PRO) (CPCB has registered 74 PROs)
- In May this year, Environment Ministry issued a draft notification that does away with PRO and dismantlers and vests all responsibility of recycling with authorized recyclers, only a handful of whom exist in India.
- Now, Authorized Recyclers will source a quantity of waste, recycle them and generate electronic certificates. Companies can buy these certificates equivalent to their annual committed target and thus do not have to be involved with engaging PROs and dismantlers.

Benefits

- Streamline and standardize the system
- Introduce an Electronic management system that would track the material that went in for recycling
- **Make recycling remunerative:** Currently, the entire system isn't remunerative for recyclers, who actually do the job of recycling.
- **Increase reliability:** The current system managed by PRO isn't always reliable as there have been several instances of double-counting (where the same articles recycled once for one company are credited into the account for multiple companies).

Why in the news?

- As part of the National eGovernance Plan, the eCourt project is an integrated Mission Mode Project under implementation since 2007 for ICT development of the Indian Judiciary.

e-Court Project

- The e-Court Integrated Mission Mode Project was launched with the objective of improving access to justice using technology.
- The Phase I of eCourts was concluded in 2015 in which 14,249 Court sites were computerized.
- Under Phase II, 18,735 District & Subordinate courts have been computerised so far.
- Using **National Judicial Data Grid (NJDG)**, developed under the eCourts Project with elastic search technology, lawyers and litigants can access case status information of 20.86 crore cases and more than 18.02 crore orders/judgments.
- **Case Information Software (CIS)** based on customized Free and Open-Source Software (FOSS) has been developed.
- **7 platforms for Citizen centric services** or service delivery channels for providing real time information on case status, cause lists, judgements etc. to lawyers/litigants.
- An **eFiling** system (version 3.0) has been rolled out for the electronic filing of legal papers with advanced features like online submission of Vakalatnama, eSigning, online video recording of oath, online payment, filing of multiple IAs/application, Portfolio Management and bilingual mode etc.

- **eSewa Kendras:** To make justice delivery inclusive and to mitigate handicaps caused by digital divide, eSewa Kendras have been rolled out to provide e-filing services to lawyers and litigants.
- A '**Judgment & Order Search**' portal has been inaugurated for the convenience of its stakeholders in searching judgments easily by providing a repository for Judgments and Final Orders of the High Courts.
- **Secure, Scalable & Sugamya Website as a Service (S3WAAS) Website:** A new divyang friendly website for eCommittee, based on S3WaaS platform is live in 13 regional languages including English & Hindi.
- Using **SMS pull facility** stakeholders can receive case status by sending sixteen characters CNR number of a case to the number 97668-99899
- **SMS push facility** is provided to stakeholders like litigants and advocates to get SMS on the occurrence of each event in a case like filing, registration, adjournment, scrutiny, listing, transfer of the case, disposal, uploading of orders etc., on their mobile registered with the court.
- **Service desk** to be set up for internal stakeholders to get the relevant information.

Talaq-e-Hasan

Polity & Governance

Why in news?

- The Supreme Court of India has stated the practice of divorce in Muslims through 'Talaq-e-Hasan' is not similar to triple talaq and the women also have an option of 'Khula'.

Talaq-e-Hasan

- A Muslim man can divorce his wife by uttering Talaq once for three months. This practice is called Talaq-e-Hasan. If couples don't live together, divorce gets formalised after the third utterance in the third month.
- However, if co-habitation occurs after the first or second utterance, parties are assumed to have reconciled and the first or second utterance becomes null and void.
- Post the divorce, the wife is not allowed to remarry for a specific time. This period is called **Iddat**. The objective of iddat is to ensure that the woman is not carrying any offspring in her womb.
- Husband and wife can not marry each after the third month of abstinence or '**Third Iddat**'. With this, a woman has to marry another man and divorce that man. After divorcing her second husband, she can marry her former or first husband.

Triple Talaq

- Triple Talaq is known as Talaq-e-Biddat and is the most controversial divorce practice among a few sects of Muslims. In this, talaq is uttered thrice consecutively and the marriage is invalid instantly.

Talaq-e-Ahsan

- Talaq-e-Ahsan is another form of divorce by the husband.
- Here, a husband asks for talaq once, and after 90 days or three menstrual cycles, a woman can marry another man. Although, divorce can be withdrawn if the couple resumes their marital relations within these three months.

MGNREGA

Polity & Governance

Why in news?

- Parliamentary Standing Committee on Rural Development and Panchayati Raj' released an action taken report on MGNREGA. The government has accepted 26 of the 33 recommendations made.

Recommendations

- Increase number of work days to 150 (from the current 100): However, it has been implemented only in drought/calamity hit areas (by providing 50 additional days) and in some states (using their own fund) e.g., Uttarakhand(150 days)
- Despite efforts to involve more women, women's participation has stagnated at around 50% in the last 5 years.
- **Increase in wages and link it with inflation:** But currently, it is linked with CPI-AL (agriculture labour)



- **Timely funding:** Currently, (as per a study) wage payments were delayed for 71 per cent of the transactions beyond the mandated seven days
- Convergence of various rural development schemes along with MGNREGA as it would help address rural poverty
- Doorstep medical facilities for job cardholders have been recommended by the committee
- Roll back the system of caste-based wages, under which NREGS workers are paid based on whether they belong to a Scheduled Caste, Scheduled Tribe, or Others, with the earlier system by which a single Fund Transfer Order.

Legal Aid Defense Counsel System

Polity & Governance

Why in the news?

- The National Legal Services Authority has recently introduced the concept of full time engagement of lawyers for legal services delivery under the Legal Aid Defense Counsel System (LADCS), which is in line with the 'Public Defender System'.

About LADCS

- LADC is a NALSA-funded project to provide free legal aid (in line with the Public defender system) to accused persons to defend themselves in criminal trials.

NALSA

- NALSA has been constituted under the Legal Services Authorities Act, 1987, to provide free legal services to weaker sections of society.
- NALSA monitors and review the effectiveness of legal aid programs and to develop rules and principles for providing legal services under the Act.
- It also **distributes funding and grants to state legal services authorities** and non-profit organisations to help them execute legal aid systems and initiatives.
- 'Nyaya Deep' is the official newsletter of NALSA.
- Chief Justice of India shall be the Patron-in-Chief, Second senior-most judge of the Supreme Court of India is the Executive-Chairman.
- **Outreach programme:** where the legal service authorities were able to effectively reach out to the villages and provide timely legal aid.
- Number of resolved Lok Adalat cases crossed the 1 crore mark.

Constitutional Provisions

- Article 39A of the Constitution of India provides that State shall secure that the operation of the legal system promotes justice on a basis of equal opportunity, and shall in particular, provide free legal aid, by suitable legislation or schemes or in any other way, to ensure that opportunities for securing justice are not denied to any citizen by reason of economic or other disability.
- Articles 14 and 22(1) also make it obligatory for the State to ensure equality before law and a legal system which promotes justice on a basis of equal opportunity to all.

National Automated Fingerprint Identification System (NAFIS)

Polity & Governance

Why in the news?

- Union Home Minister inaugurated the National Automated Fingerprint Identification System (NAFIS).

About NAFIS

- It is conceptualized and managed by the National Crime Records Bureau (NCRB) at the Central Fingerprint Bureau (CFPB) in New Delhi,
- The project is a country-wide searchable database of crime- and criminal-related fingerprints.
- The web-based application functions as a central information repository by consolidating fingerprint data from all states and Union Territories.

Benefits of NAFIS

- It enables law enforcement agencies to upload, trace, and retrieve data from the database in real time on a 24×7 basis.
- It would help in the quick and easy disposal of cases with the help of a centralised fingerprint database.

Government notifies Battery Waste Management Rules, 2022

Polity & Governance

Why in the news?

- Ministry of Environment, Forest and Climate Change, Government of India published the Battery Waste Management Rules to ensure environmentally sound management of waste batteries.

About rules

- Notification of these rules is a transformative step towards implementation of the announcement made by Prime Minister Shri Narendra Modi in his address to the Nation on Independence Day on 15th August, 2021 **to promote Circular Economy in full earnest.**
- New rules will **replace Batteries (Management and Handling) Rules, 2001.**
- The rules **cover all types of batteries**, viz. Electric Vehicle batteries, portable batteries, automotive batteries and industrial batteries.
- The rules function based on the concept of **Extended Producer Responsibility (EPR)** where the producers (including importers) of batteries are responsible for collection and recycling/refurbishment of waste batteries and use of recovered materials from wastes into new batteries.
- EPR mandates that all waste batteries to be collected and sent for recycling/refurbishment, and its prohibits disposal in landfills and incineration. To meet the EPR obligations, producers may engage themselves or authorise any other entity for collection, recycling or refurbishment of waste batteries.
- The rules will enable setting up a **mechanism and centralized online portal for exchange of EPR certificates** between producers and recyclers/refurbishers to fulfil the obligations of producers.
- The rules promote setting up of new industries and entrepreneurship in collection and recycling/refurbishment of waste batteries.
- Mandating the minimum percentage of recovery of materials from waste batteries under the rules will bring new technologies and investment in recycling and refurbishment industry and create new business opportunities.
- Prescribing the use of certain amount of recycled materials in making of new batteries will reduce the dependency on new raw materials and save natural resources.
- Online registration & reporting, auditing, and committee for monitoring the implementation of rules and to take measures required for removal of difficulties are salient features of rules for ensuring effective implementation and compliance.
- On the **principle of Polluter Pays Principle**, environmental compensation will be imposed for non-fulfilment of Extended Producer Responsibility targets, responsibilities and obligations set out in the rules. The funds collected under environmental compensation shall be utilised in collection and refurbishing or recycling of uncollected and non-recycled waste batteries.

Aadhaar- Voter ID linkage

Polity & Governance

Why in news?

- Reports have surfaced online of instances where block level officers have asked individuals to link their Aadhaar with their Voter IDs, failing which their Voter IDs could be canceled.

About the Election Laws (Amendment) Act 2021

- **Linking Voter list with Aadhaar**
 - The electoral registration officer may ask a person to provide their Aadhaar number for verifying their identity.
 - If their name is already on the electoral roll, then the Aadhaar number may be required for authentication.
 - Persons will not be refused inclusion in the electoral roll or have their names deleted from the roll if they are unable to furnish an Aadhaar number.
 - Such persons may be permitted to furnish alternate documents prescribed by the central government.



- **Date for enrolment in Voter list**
 - Under the 1950 Act, the qualifying date for enrolment is 1st January of the year.
 - The 2021 act amended the earlier provisions and provide 4 qualifying dates in a calendar year: January 1, April 1, July 1, and October 1 to enrol under the voter list.
- **Gender equality**
 - The 1950 Act permits service voters, such as members of the armed forces or central government employees posted outside India.
 - The 1951 Act enables the wife of a person holding a service qualification to vote either in person or by postal ballot.
 - The recent amendment replaces the term 'wife' with 'spouse' in both the Acts.

Merits in Linkages

- The Election Commission conducts regular exercises to maintain an updated and accurate voter list.
 - As part of this exercise, the officials weed out duplication of voters.
- Linkage of Aadhaar with voter IDs will **ensure that only one Voter ID is issued per Indian citizen** and will also **upload the constitutional principles of "One Person-One Vote"**.
- At the end of 2021, 99.7% of the adult Indian population had an Aadhaar card. This range exceeds any other officially valid document such as driver's licence, ration cards, PAN cards etc..
- Aadhaar allows for biometric authentication, Aadhaar authentication and verification are considered more reliable, quicker and cost-efficient.

Issues

- This goes against the verdict of the Puttaswamy case (Right to Privacy).
- The **preference for Aadhaar to decide valid voters is confusing as Aadhaar is only a proof of residence and not a proof of citizenship**.
 - This could solve the problem of duplication of voters but it will not remove voters who are not citizens of India from the electoral rolls.
- **Error rates in the biometric-based authentication system.** As per the Unique Identification Authority of India in 2018, Aadhaar-based biometric authentication had a 12% error rate.
 - The Supreme Court of India stated in Puttaswamy's judgement that a person would not be denied benefits in case Aadhaar-based authentication could not take place.
 - This concern is also valid in the case of using Aadhaar as a tool to clean electoral rolls.
- Several social activists and civil society have raised concern that linking electoral rolls and Aadhaar could lead to the **violation of the right to privacy and encourage surveillance measures by the government**.

NCRB Report 2021

Polity & Governance

Why in news?

- NCRB statistics show a 20% jump in cognisable crimes against children in 2021 compared to the previous year, making them vulnerable.

Major Findings

- Punjab saw a dip of 11% in overall crimes in 2021 compared to 2020, but children are not safe as there has been an increase in crimes against them.
- In the year gone by, 2,556 cases of crimes against children were registered under various sections of the Indian Penal Code (IPC) and special Acts and local laws (SLL) as compared to 2,121 cases reported in 2020.
- Consequently, the rate of crime against children – number of crimes committed per lakh population, has also shot up to 29.2 in 2021 from 24.3 in the preceding year, according to the '**Crime in India**' report.
- The total number of crimes against children in all 28 states was 1,40,839.
- There has been, however, a sharp rise in kidnappings and abductions of children.
- Against 1,032 incidents involving 1,080 victims in 2020, 1,440 incidents of kidnapping and abduction of a total 1,450 children were reported last year.



- Of these, 1,372 victims, or say 94%, were minor girls who were abducted to compel them for marriage compared to 984 in 2020 – an increase of 388.
- As per the NCRB data, a total of 751 cases of sexual offenses against children were registered under the Protection of Children from Sexual Offences Act.
- Increase in use of material depicting children in sexually explicit acts.
- Under the Information Technology Act, 56 cases of cybercrime were registered last year for publishing or transmitting such material. Their number was just eight in 2020.
- Attempt-to-murder cases were also down to 926 in 2021 from 961 in 2020.
- There was an increase in incidents of rape and attempt to rape. In 2021, 508 women were raped in Punjab as compared to 504 in 2020.
- Rape attempt cases also rose to 60 from 53 in years under comparison.

President's Police Medals

Polity & Governance

Why in news?

- On the occasion of Independence Day 2022, 1082 police personnel received the "Police Medals".
- 7 personnel received President's Correctional Service Medal for Distinguished Service while 38 personnel received the Correctional Service Medal for Meritorious Service.

About President's Police Medal

- The President's Police Medal is presented to members of law enforcement in India. The award was established on March 1, 1951. It was initially called as "President's Police and Fire Service Medal". It is given for either gallantry or distinguished service. Police Medal for Gallantry is accorded with higher precedence. It is presented on Republic Day and Independence Day, annually. Features of the medal include;
- It is made up of bronze and is circular in shape. It has the diameter of 35 mm.
- The obverse of Police medal comprises of State Emblem of India at the centre, along with words POLICE MEDAL written above and state motto, Satyameva Jayate written below in Devanagari script.
- Two five-pointed stars are present on either side of the medal. They separate the inscription.
- Name of the recipient is inscribed on medal's rim.

Baal Aadhaar Card

Polity & Governance

Why in news?

- Over 7.9 million children aged up to five were enrolled under the Unique Identification Authority's Bal Aadhaar initiative from April to July.

Bal Aadhaar

- The Bal Aadhaar, a precursor to a standard Aadhaar, is issued in blue colour to children aged up to five. Upon expiration, a regular Aadhaar is issued.
- Bal Aadhaar works as a facilitator in availing several welfare benefits, and also works as a digital photo identity for children.
- Biometrics to establish uniqueness for the Bal Aadhaar is not collected unlike in the case of Aadhaar. A facial image of a child is instead taken for enrolment.
- Biometric authentication of the parent/guardian and a proof of relationship document, preferably a birth certificate, are collected at the time of enrolment.
- To differentiate the Baal Aadhaar from normal Aadhaar, it is issued in blue colour, with a remark that this is valid till the child attains the age of 5 years. On attaining the age of 5, the child is required to furnish his or her biometrics at an Aadhaar Seva Kendra to complete a process called mandatory biometric update.
- The audit was also critical of UIDAI's move to issue Aadhaar cards to children and newborns without biometrics under an initiative known as Bal Aadhaar. This needs to be reviewed because anyway after 5 years, a child has to apply for a new regular Aadhar.

Why in news?

- National Anti-Fraud Unit (NAFU) is created at NHA for overall monitoring and implementation of anti-fraud framework supported by State Anti-Fraud Units (SAFUs) at State level.

AB-PMJAY

- Ayushman Bharat –Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) is governed on a zero-tolerance approach to any kind of fraud viz. suspect/non-genuine medical treatment claims, impersonation and up-coding of treatment packages/procedures etc.
- The Government of India adopts a pro-active approach towards fraud and abuse.
- It goes on to underscore that several countervailing strategies have been employed under PM-JAY to address various types of fraud and it acknowledges the success of the AI-based technologies deployed under the scheme.
- National Health Authority -the implementing agency of AB-PMJAY has issued a comprehensive set of anti- fraud guidelines.
- The feature of Aadhar-based biometric verification of beneficiary at the time of admission and discharge is launched at all private hospitals.
- Use of artificial intelligence and machine learning is made for a comprehensive fraud analytics solution to detect fraud pro-actively, develop algorithms that can be used on large volume of data to identify suspect transactions and entities and risk scoring of hospitals and claims.
- Around 0.18% of the total authorized hospital admissions under the scheme are confirmed as fraud since its inception.

Features of AB-PMJAY

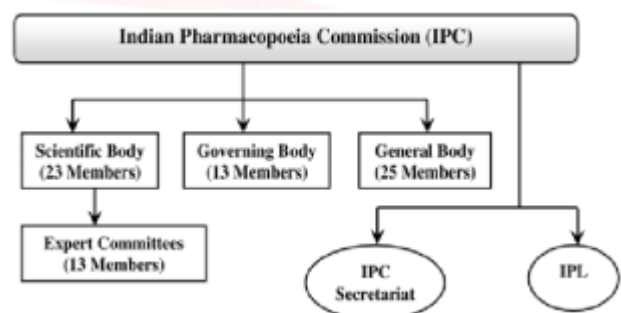
- It offers a sum insured of Rs.5 lakh per family for secondary care (which doesn't involve a super specialist) as well as tertiary care (which involves a super specialist).
- Under PMJAY, cashless and paperless access to services are provided to the beneficiaries at the point of service.
- Health Benefit Packages covers surgery, medical and day care treatments, cost of medicines and diagnostics.
- Packaged rates (Rates that include everything so that each product or service is not charged for separately).
- They are flexible, but they can't charge the beneficiary once fixed by the hospitals.
- The scheme also has prescribed a daily limit for medical management.

Pharmacopoeia Commission for Indian Medicine
Schemes & Policies
Why in news?

- The Government of India has established Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H), as a subordinate office under Ministry of Ayush by merging Pharmacopoeia Commission of Indian Medicine & Homoeopathy (PCIM&H) and the two central laboratories.

Functions of Commission

- The Commission is engaged in development of Pharmacopoeial Standards for Ayurvedic, Unani, Siddha & Homoeopathic drugs.
- PCIM&H is also acting as Central Drug Testing cum Appellate Laboratory for Indian systems of Medicine & Homoeopathy.
- Quality Certifications Scheme implemented by the Quality Council of India (QCI) for grant of AYUSH Premium mark to Ayurvedic, Siddha and Unani products on the basis of third party evaluation of quality in accordance with the status of compliance to international standards.



Why in news?

- The Ministry of AYUSH has initiated steps to set up a nationwide digital platform called "**AYUSH GRID**" which aims to bring onboard all AYUSH facilities including hospitals and laboratories and to promote traditional systems of healthcare.

About the project

- Ayush Grid Project was launched by Ministry of Ayush in 2018 to create a backbone for IT sector.
- Project was launched under Digital India Program that support 'Information and Technology' in transforming operational efficiency, enhancing service quality and improving delivery of service.
- It will allow integration of all stakeholders and services or functions related to Ayush systems of health care.
- The project seeks to bring all onboard all the facilities of AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy), including laboratories and hospitals besides promoting traditional healthcare systems.
- As a part of MoU, entire Ayush Sector will be digitalised, that will help in transformation of health care delivery across all levels, including research, education, drug regulations and various health programmes.

Why in news?

- A draft international pandemic treaty governing prevention, preparedness and response of future pandemics will be ready for negotiation in 18 months.

About the treaty

- In December 2021, the Health Assembly adopted a decision titled "The World Together" at its second special session since it was founded in 1948.
- Under the decision, the health organization established an intergovernmental negotiating body (INB) to draft and negotiate the contents of the pandemic treaty in compliance with Article 19 of the WHO Constitution.
- The pandemic treaty is expected to cover aspects like data sharing and genome sequencing of emerging viruses and equitable distribution of vaccines and drugs and related research throughout the world.

Why in news?

- As the importance of social security came into focus after the major waves of the COVID-19 pandemic, the debate on universal basic income (UBI) began to resurface in policy circles across the globe.

Why UBI?

- The insurance penetration (premium as a percentage of GDP) in India has been hovering around 4% for many years compared to 17%, 9% and 6% in Taiwan, Japan and China, respectively.
- Thus insurance can become a need-based safety net for the poor.
- The economy largely remains informal, data of that informal sector are now available both for businesses (through GSTIN, or Goods and Services Tax Identification Number) and for unorganised workers (through e-Shram, which is the centralised database of all unorganised workers).
- The social registry portal, 'Kutumba', developed by Karnataka is a good example of social security data.

Types of Security Nets

- The first type of safety net is basically a social assistance programme meant for the most income-deprived sections of society.
- The second is an active safety net which works like a trampoline so that those who fall on it are able to bounce back to 'Basic Living Wages'. The second type of safety net is a scheme with a higher outlay.



- The third is a proactive safety net which acts like a launchpad so that those who fall on it will not only bounce back but will also move up beyond 'Basic Living Wages'.
- The third type of social security net is the most desirable option but requires immense resources and institutional capacity.

Concerns

- Lack of political will
- Huge fiscal pressure
- Free cash to people may increase the inflation rate
- Difficulty in reducing subsidies on exiting schemes
- No guarantee
- that cash will be spent on productive assets.

Mission Amrit Sarovar

Schemes & Policies

Why in news?

- The Mission Amrit Sarovar was launched on National Panchayati Raj Day on 24th April 2022 as a part of celebration of Azadi ka Amrit Mahotsav with an objective to conserve water for future.



Features of the mission

- The Mission is aimed at developing and rejuvenating 75 water bodies in each district of the country.
- All the States including States of Assam and Rajasthan are covered under the Mission.
- The Mission works through the States and Districts, through refocusing of various schemes such as Mahatma Gandhi National Rural Employment Guarantee Scheme, XV Finance Commission Grants, Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) sub schemes such as Watershed Development Component, Har Khet Ko Pani besides States' own schemes.
- The Mission encourages mobilisation of citizen and non-govt resources for supplementing these efforts.

Nagar Van Yojana

Schemes & Policies

Why in news?

- On the occasion of World Environment Day, the government announced implementation of the Nagar van scheme to develop 200 Urban Forests across the country in next five years with a renewed focus on people's participation and collaboration between Forest Department, Municipal bodies, NGOs, Corporates and local citizens.

About the Yojana

- **Aim-** To create 400 Urban Forest and 200 Nagar Vatikas in at least 20 hectares of land in the urban areas in the next five years (2020-2025) (on existing forest land or any other vacant land by Urban local bodies)
- Launched in 2020
- Van will be maintained by State Government
- **Funding:** CAMPA Fund (under Compensatory Afforestation Fund Act 2016)
- Minister of State for Environment, Forest & Climate Change
- Warje Urban Forest in Pune (Maharashtra) will be considered a role model for the Scheme.



Why in news?

- Ministry of Earth Sciences (MoES) has taken many initiatives to harness the potential of Ocean resources.

O-SMART

- The Ocean Services, Modelling, Applications, Resources and Technology (O-SMART) Scheme was approved by the Union Cabinet in August 2018 and is implemented by the Ministry of Earth Sciences.
- It aims at stepping up ocean research and setting up early warning weather systems.
- It addresses ocean development activities such as services, technology, resources, observations and science and provides necessary scientific and technological background required for implementation of various aspects of Blue Economy.

Other Initiatives

- Government of India signed a 15 year contract with International Seabed Authority (ISA) for exploration of polymetallic nodules from Central Indian Ocean Basin (CIOB) in 2002.
- Extensive survey and other developmental activities have been carried out in 75000 sq km area retained by India in CIOB.
- MoES has undertaken exploration and other developmental activities related to polymetallic sulphides under a 15 years contract signed in 2016 with International Seabed Authority (ISA) for exploration of polymetallic sulphides in the allotted area of 10,000 sq km along Central Indian Ridge (CIR) & Southwest Indian Ridge (SWIR) region of the Indian Ocean.
- National Institute of Ocean Technology (NIOT) under MoES has developed, demonstrated and operated unmanned remotely operated systems to harness ocean resources. Centre for Marine Living Resources and Ecology (CMLRE) of MoES explored the deep-sea living resources under Marine Living Resources Programme (MLRP).

Why in news?

- The Ministry of Housing and Urban Affairs has launched on June 20, 2022 an innovative project – **NIPUN** (National Initiative for Promotion of Upskilling of Nirman workers), as part of Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (**DAY-NULM**).

NIPUN

- NIPUN, inter-alia, includes on-site Recognition of Prior Learning (RPL) of construction workers, and fresh skill training in job oriented courses in the construction and related sectors.
- This project aims to skill train over one lakh construction workers in the National Skills Qualifications Framework (NSQF) aligned courses, through a network of industry partners in construction sector and the related Sector Skill Councils (SSCs) i.e. Construction Skill Development Council of India (CSDCI), Water Management & Plumbing Skill Council (WMPSC) and Infrastructure and Equipment Sector skill Council (IESC).
- National Skill Development Corporation (NSDC) has been engaged as the implementation agency.
- The project, which is of 1 year duration, is estimated to cost ₹ 93 crore.

Why in news?

- Mission Vatsalya Scheme is a roadmap to achieve development and child protection priorities aligned with the Sustainable Development Goals (SDGs).

Features of the scheme

- It lays emphasis on child rights, advocacy and awareness along with strengthening of the juvenile justice care and protection system with the motto to 'leave no child behind'.
- The Juvenile Justice (Care and Protection of Children) Act, 2015 provisions and the Protection of Children from Sexual Offences Act, 2012 form the basic framework for implementation of the Mission.

- Funds under the Mission Vatsalya Scheme are released according to the requirements and demands made by the States/UTs.
- The Scheme is implemented as a Centrally Sponsored Scheme in partnership with State Governments and UT Administrations to support the States and UTs in universalizing access and improving quality of services across the country.
- The fund sharing pattern is in the ratio of 60:40 between Centre and State & Union Territories with Legislature respectively.
- **Mission Vatsalya scheme** supports the children through Non-Institutional Care under Private Aided Sponsorship wherein interested sponsors (individuals/ institutions/ company/ banks/ industrial units/ trusts etc.) can provide assistance to children in difficult circumstances.
- The District Magistrates take measures to encourage individuals or Public/ Private Sector Organisations to sponsor a child or a group of children or an Institution.

Operation Yatri Suraksha

Schemes & Policies

Why in news?

- With the aim of improving the security of passengers travelling by Indian Railways, RPF has launched a Pan-India Operation under the code name "Operation Yatri Suraksha".

About operation

- As part of this initiative, several steps are being taken to provide foolproof security to passengers i.e. Train Escorting, visible presence on stations, Surveillance through CCTV, Surveillance on active criminals, collection of intelligence about the criminals and action thereupon, identifying black spots and crime prone trains/sections and enhancing security thereat among others to formulate an actionable strategy to reduce crime against passengers.
- Regular coordination is being made with all the stake holders and joint action is planned to improve passenger security regularly.

Significance

- During the drive, 365 suspects were nabbed by RPF personnel and were handed over to the concerned GRPs for legal action based on which 322 cases of Passenger Crime i.e. theft of Passenger Belongings, Drugging, Robbery, Chain Snatching etc. were detected.
- Stolen property of passengers worth more than Rs. 1 Crore was recovered either from the possession of these criminals or in course of investigation of these offences.

Pradhan Mantri Adi Adarsh Gram Yojna

Schemes & Policies

Why in news?

- Government has modified the earlier scheme of 'Special Central Assistance to Tribal Sub-Scheme (SCA to TSS)' with nomenclature 'Pradhan Mantri Adi Adarsh Gram Yojna (PMAAGY)', for implementation during 2021-22 to 2025-26.

PMAAGY

- Aim- at mitigating gaps and providing basic infrastructure in villages with significant tribal population in convergence with funds available under different schemes in Central Scheduled Tribe Component.
- It is envisaged to cover 36,428 villages having at least 50% ST population and 500 STs across States / UTs with notified STs during the period.
- The main objective of this scheme is to achieve integrated socio-economic development of selected villages through convergence approach.

It includes the following components-

- Preparing Village Development Plan based on the needs, potential, and aspirations;
- Maximizing the coverage of individual / family benefit schemes of the Central / State Governments;
- Improving the infrastructure in vital sectors like health, education, connectivity and livelihood;

Why in news?

- Government of Jammu & Kashmir launched the "PARVAZ Market Linkage Scheme" recently.

About the scheme

- The PARVAZ scheme was launched with the aim of creating market linkage support for shipment of Agriculture & Horticulture perishables from Jammu and Kashmir.
- Under the scheme, government will provide a subsidy of 25% on freight charges, in a bid to carry perishable fruits through Air Cargo. Subsidy will be provided to farmers through Direct Benefit Transfer mode.
- Scheme is being implemented by Jammu & Kashmir Horticultural Produce Marketing and Processing Corporation (JKHPMC).
- JKHPMC is spreading awareness among farmers regarding the significance of PARVAZ scheme so that they could benefit from it.

Importance

- Government has made the documentation work related to scheme simple and easy. Farmers will get the subsidy on time, under the scheme.
- This scheme seeks to benefit the farmers in doubling their income.
- Thus, it will ensure economic and social welfare of the farmers.
- They will receive the price of their produce directly in bank account and no intermediary will get involved.

The SMILE 75-Initiative for the Rehabilitation of Beggars**Schemes & Policies****Why in news?**

- The union minister for social justice and empowerment launched the "SMILE-75 Initiative" to mark 75 years of Independence, in which municipal corporations will focus on identifying and rehabilitating persons engaged in begging across India including Delhi, Tirupati, Guwahati, Patna, Ahmedabad, Mumbai, Kolkata, Agra etc.

SMILE-75

- SMILE (Support for Marginalized Individuals for Livelihood and Enterprise Scheme) is aimed at making cities/towns and municipal areas begging-free and comprehensive rehabilitation of the persons engaged in the act of begging.
- Under the initiative, seventy-five (75) Municipal Corporations in collaboration with NGOs and other stakeholders will cover several comprehensive welfare measures for persons who are engaged in the act of begging.
- Rehabilitation, provision of medical facilities, counselling, awareness, education, skill development, economic linkages and convergence with other Government welfare programmes etc.

Beggars in India

- According to the Census 2011 total number of beggars in India is over 4 lakhs.
- West Bengal tops the chart followed by Uttar Pradesh and Bihar
- Though there is no central law on begging, some states have adopted the Bombay Prevention of Begging Act, 1959, which penalises beggary.

National Intellectual Property Awareness Mission (NIPAM)**Schemes & Policies****Why in news?**

- National Intellectual Property Awareness Mission (NIPAM) has achieved target of imparting Intellectual Property (IP) awareness and basic training to 1 million students on 31st July 2022, ahead of the deadline which was 15 August 2022.

About NIPAM

- It is aimed at imparting IP awareness and basic training for students (class 8 to 12) to inculcate the spirit of creativity and innovations. It was launched in 2021 as part of 'Azadi Ka Amrit Mahotsav'.
- Intellectual property rights (IPR) are the rights given to persons over the creations of their minds: inventions, literary and artistic works, and symbols, names and images used in commerce.
- Nodal Agency: Intellectual Property Office (under Ministry of Commerce and Industry)
- **National IPR Policy (adopted in 2016):** It gave an institutional mechanism for the implementation of IPR. CIPAM (cell for IPR promotion and management) is the implementation agency for National IPR Policy.

Goa becomes first state to be 'Har Ghar Jal' certified

Schemes & Policies

Why in news?

- Goa became 1st state to be certified with 'Har Ghar Jal' in the country.

Har Ghar jal

- It aims to encourage the state to ensure tap water connection to every household by 2024
- Under Jal Jeevan Mission (Ministry of Jal Shakti)
- Above 52% of the rural households are now connected with tap water (in 2019 it was only 17%)
- The people from all the villages have declared their village as Har Ghar Jal through a resolution passed by Gram Sabha, certifying that all households in the villages have access to safe drinking water through taps.
- Village Water and Sanitation Committee (VWSC) or paani Samiti has been constituted in all the 378 villages of Goa and 96 villages of D&NH and D&D.
- It is responsible for the operation, maintenance, and repair of water supply infrastructure developed under 'Har Ghar Jal' programme.

About JJM

- Jal Jeevan Mission, a central government initiative under the Ministry of Jal Shakti, aims to ensure access of piped water for every household in India.
- Jal Jeevan Mission, is envisioned to provide safe and adequate drinking water through individual household tap connections by 2024 to all households in rural India.
- The programme will also implement source sustainability measures as mandatory elements, such as recharge and reuse through grey water management, water conservation, rain water harvesting.

World Population Prospects 2022

Schemes & Policies

Why in news?

- According to the 2022 edition of the United Nations' World Population Prospects (WPP), India is projected to surpass China as the world's most populous country in 2023.

Major Findings

- India is at the 3rd stage of the demographic transition (DT).
- India is experiencing a slowing population growth rate due to constant low mortality and rapidly declining fertility. Its population growth is further expected to fall to 1% by 2025.
- Fertility rates have been declining, so have mortality rates with increased access to healthcare and advances in medicine.
- Population of 0-14 years and 15-24 years will continue to decline while those of 25-64 and 65+ will continue to rise for the coming decades.
- This reduction of premature mortality for successive generations, reflected in increased levels of life expectancy at birth, has been a driver of population growth in India.

Global Population growth

- The global population is expected to grow to around 8.5 billion in 2030, 9.7 billion in 2050 and 10.4 billion in 2100.
- In 2020, the global growth rate fell under 1% per year for the first time since 1950.
- More than half of the projected increase in global population up to 2050 will be concentrated in just eight countries: The Democratic Republic of the Congo, Egypt, Ethiopia, India, Nigeria, Pakistan, the Philippines and the United Republic of Tanzania.
- The 46 Least Developed Countries (LDCs) are among the world's fastest-growing.
- Many are projected to double in population between 2022 and 2050, putting additional pressure on resources and posing challenges to the achievement of the UN's Sustainable Development Goals (SDGs).
- A sustained drop in fertility has led to an increased concentration of the population at working ages (between 25 and 64 years), creating an opportunity for accelerated economic growth per capita.
- This shift in the age distribution provides a time-bound opportunity for accelerated economic growth.

Suggestions

- Countries with ageing populations should take steps to adapt public programmes to the growing proportion of older persons, including by improving the sustainability of social security and pension systems and by establishing universal health care and long-term care systems.
- To maximize the potential benefits of a favourable age distribution, countries need to invest in the further development of their human capital by ensuring access to health care and quality education at all ages and by promoting opportunities for productive employment and decent work.
- For those already in the 25-64 age bracket, there is a need for skilling, which is the only way to ensure they are more productive and have better incomes.

About WFP

- The Population Division of the UN has been publishing the WPP in a biennial cycle since 1951.
- Each revision of the WPP provides a historical time series of population indicators starting in 1950.
- It does so by taking into account newly released national data to revise estimates of past trends in fertility, mortality or international migration.

Nashe Se Azaadi

Schemes & Policies

Why in news?

- The Ministry of Social Justice and Empowerment is running a flagship campaign known as NashaMukt Bharat Abhiyaan (NMBA) that was launched on 15 August 2020 in 272 districts of India.

Nashe Se Azadi

- Department of Social Justice & Empowerment organized "Nashe se Azaadi" -National Youth and Students Interaction Program on 4th August 2022 under NashaMukt Bharat Abhiyaan.
- Dependence to any substance not only affects the individual's health but also disrupts their families and the whole society.
- It is the responsibility of the Government as well as the community and also the individuals to make India drug sensitised. NashaMukt Bharat Abhiyaan was launched on 15th August 2020, almost 2 years ago with the aim of creating an army of youth, women and community who are self-reliant and well informed about the ill effects of substance use.
- The campaign through its innovative programmes in the form of nukkadnataks, cycle rallies, competitions and wall paintings have penetrated through the existing social conditioning and made a revolution.
- Under the NashaMukt Bharat Abhiyaan, it should be ensured that everyone gets access to treatment & rehabilitation and an inclusive environment for one's betterment without discrimination and stigma.

Why in the news?

- Recently, India demanded World Trade Organization (WTO) find a permanent solution to the issue of public stockholding (PSH) of food.

India and WTO exposts

- In a notification, **India has informed the World Trade Organisation (WTO)** that the value of its **rice production was USD 43.67 billion in 2018-19** and for that it provided subsidies worth USD 5 billion, which is in **excess of the prescribed 10 per cent ceiling**.
- India's breach of commitment for rice, a traditional staple food crop under a provision of the Agreement on Agriculture arises from support provided in pursuance of public stockholding programmes for food security purposes, which were in existence as of the date of the **Bali Ministerial Decision on Public Stockholding for Food Security Purposes**.
- It said that the **country's public stockholding programmes for food security purposes** (covering rice and a number of other commodities) have been consistently reported to the WTO.
- The stocks under the programme are acquired and released in order to meet the domestic food security needs of India's poor and vulnerable population, and not to impede commercial trade or food security of others, the notification said.
- For these reasons, the **breach of the limits for rice is covered by the peace clause** set out in the **Bali Ministerial Decision on Public Stockholding for Food Security Purposes** and the General Council Decision. **This is the first time any country has invoked the peace clause**.
- It is a test case to see if in such circumstances, like the **ongoing Covid-19 pandemic**, the WTO members give primacy to the developing countries' food security or if developed countries will seek market access.
- Before the harvest during each Rabi / Kharif crop season, India announces the minimum support prices (MSP) for procurement on the basis of the recommendation of the **Commission for Agricultural Costs and Prices (CACP)**, which along with other factors, takes into consideration the cost of various agricultural inputs and a reasonable margin for farmers for their produce.
- The Centre and state governments, through their agencies such as **Food Corporation of India (FCI)**, **National Agricultural Cooperative Federation of India (NAFED)** and others, procure foodgrains from farmers at the MSP in order to meet the overall demand of different welfare schemes.

One Nation One Ration Card Scheme (ONORC)**Economy****Why in the news?**

- The Department of Food and Public Distribution is observing week-long activities to celebrate "One Nation One Ration Card" (ONORC) Scheme which was launched on 9th August, 2019, as a pilot project in four states.

About ONORC

- ONORC is a technology driven scheme which is being implemented by the Central Government for the nation-wide portability of ration cards under National Food Security Act (NFSA).
- This system allows all NFSA beneficiaries, particularly the migrant beneficiaries, to claim either full or part of their entitled food grains from any Fair Price Shop (FPS) in the country through existing ration card with biometric/Aadhaar authentication in a seamless manner.
- The system also allows their family members back home, if any, to claim the balance foodgrains on the same the ration card.
- The Scheme is one-of-its-kind Citizen Centric initiative in the country.
- Presently, the system covers nearly all the (~80 Crore) NFSA beneficiaries (almost the entire NFSA population).
- Moreover, on an average, about ~3 Crore portability transactions per month are being recorded under the scheme.
- The objective** of this beneficiary centric high-impact program is to empower all NFSA beneficiaries to be Atma Nirbhar for their food security anywhere in the country.
- The scheme has proved to be a tremendous value-added service to each NFSA beneficiary during the COVID- 19 pandemic, particularly migrant beneficiary.

- It facilitated them to avail the benefit of subsidised foodgrains with flexibility from any location during the lockdown/crisis period.
- Since inception (in August 2019), about 77.88 Crore portable transactions have taken place under the ONORC.

Incubation Centres

Economy

Why in the news?

- Atal Innovation Mission (AIM), NITI Aayog launched Call for Applications for its two leading programs **Atal Incubation Centre (AIC)** and **Atal Community Innovation Centre (ACIC)**.

About Atal Incubation Centre (AIC):

- AIC is an initiative of the AIM, NITI Aayog to foster innovation and entrepreneurial spirit while creating a supportive ecosystem for start-ups and entrepreneurs in India.
- Each AIC is supported with a grant of up to INR 10 crores over a period of 5 years.
- Since 2016, AIM has established 68 Atal Incubation Centres across 18 states and 3 UTs which have supported more than 2700 startups.

About Atal Community Innovation Centre (ACIC)

- ACIC is envisaged to serve the unserved/underserved areas of the country including Tier 2 and Tier 3 cities with respect to the start-up and innovation ecosystem.
- Each ACIC is supported with a grant of up to INR 2.5 crores over a period of 5 years.
- AIM has established 14 Atal Community Innovation Centres across the country.

ODOP Initiative

Economy

Why in the news?

- The Central Government has initiated the One District One Product (ODOP) in different States/UTs of the country.

About ODOP

- ODOP initiative is operationally merged with '**Districts as Export Hub (DEH)**' initiative of the DGFT, Department of Commerce, with the Department for Promotion of Industry and Internal Trade (DPIIT) as a major stakeholder.
- The ODOP Initiative is aimed at fostering balanced regional development across all districts of the country enabling holistic socio-economic growth across all regions.
- The objective is to convert each District of the country into a manufacturing and Export Hub by identifying products with export potential in the District.

District Export Action Plan

- Districts Export Action Plans are prepared for identified products and services for overseas markets, which includes specific actions required to support local exporters /manufacturers in producing/manufacturing identified products in adequate quantity and with the requisite quality, for reaching potential buyers.
- These plans also include identifying and addressing challenges for exports of such identified products/services, improving supply chains, market accessibility and handholding for increasing exports.
- ODOP/DEH initiatives contribute to the goal of AtmaNirbhar Bharat, Vocal for local and Make in India, by providing opportunities for employment, through significantly increasing the manufacturing and exports of identified products.

Why in the news?

- As a part of the celebrations during Azadi Ka Amrit Mahotsav, Ministry of Communication is hosting the International Telecommunication Union's Regional Standardization Forum (RSF) for Asia and Oceania region in New Delhi. The theme of the Forum is "Regulatory and Policy aspects of Telecommunications/ICTs".

About RSF

- The Regional Standardization Forum is a platform for constructive exchange of ideas, discussing
- standardization topics including inter alia India's experience in various sectors of technology like Sustainable Digital Transformation and the Role of ITU Standards, Harnessing Technologies for Digital and Financial Inclusion in Emerging Markets, evolving Data Value Chain and Digital Health.
- The meeting of Regional Group Asia and Oceania is taking place in physical mode after a gap of three years due to CoVID-19.
- The objective of this meeting is to contribute towards Standardization work of ITU-T Study Group 3 and also to secure the interest of Asia and Oceania region.

Nano Urea**Economy****Why in the news?**

- India will produce over 6cr bottles of Nano urea and make it available to farmers in 2022-23.

About Nano Urea

- Nano Urea is a nutrient to provide nitrogen to plants as an alternative to the conventional urea.
- Nano Urea Liquid can curtail the requirement of the same by at least 50%.
- It contains 40,000 ppm of nitrogen in a 500 ml bottle which is equivalent to the impact of nitrogen nutrient provided by one bag of conventional urea.
- Nano nitrogen (Nano Urea) can enhance farmer's crop yields beside nitrogen saving to the extent of 50%.

Importance

- The excess conventional urea causes an environmental pollution, harms soil health, and making plant more susceptible for disease & insect infestation, delayed maturity of the crop & production loss.
- Nano Urea Liquid makes the crops stronger, healthy and protects them from lodging effect.
- It will lead to reduction in Global Warming
- It will improve the quality of underground water by polluting it less.
- It will cut down post harvesting costs and increase farmers' income.

Manthan Platform**Economy****Why in the news?**

- Government has unveiled a platform to drive collaboration between the industry and research institutes to implement technology-based social impact innovations and solutions in the country.

About Platform

- Promises to expand government's efforts of building and nurturing industry participation in R&D.
- It is also the evidence of government's commitment to UN's Sustainable Development Goals (SDG).
- It is powered by NSEIT and is led by office of Principal Scientific Advisor (PSA).
- Platform will help in escalating the interactions among stakeholders, sharing challenges in emerging technologies & scientific interventions and facilitating research & innovation.
- It will also provide necessary centre to transform India through innovative ideas, public-private-academia collaboration and inventive minds with the objective of achieving India's sustainability goals

- It will facilitate knowledge transfers and interactions via information exchange sessions, events and exhibitions to develop a framework for future science, technology and innovation-led growth.
- The launch of Manthan Platform also commemorates India's 75 years of independence and provides an opportunity to bring Indian and world's communities nearer to India's technology revolution.

Grameen Udyami Project

Economy

Why in the news?

- To augment skill training in tribal communities for their inclusive and sustainable growth, National Skill Development Corporation (NSDC) in partnership with Seva Bharti and Yuva Vikas Society, launched the second phase of Grameen Udyami Project.

About the project

- **Grameen Udyami is a unique multi-skilling project, funded by NSDC that aims to train tribal students and impart functional skills to them for enabling livelihoods.**
- The project is being **implemented in six states— Maharashtra, Rajasthan, Chhattisgarh, Madhya Pradesh, Jharkhand, and Gujarat.**
- This **concept was crystallized by MoS, Shri. Rajeev Chandrasekhar and tribal MPs.**
- The project seeks to augment skill training in tribal communities for their inclusive and sustainable growth.
- **In the first phase** of training, candidates were mobilized from rural and tribal areas of Maharashtra, Rajasthan, Chhattisgarh, Madhya Pradesh, and Gujarat.
- **The phase-II of the pilot project launched in Ranchi** is being implemented by Yuva Vikas Society, through Seva Bharti Kendra in Ranchi.
- **NSDC under the aegis of MSDE has supported** in setting up of labs and classrooms through Sector Skill Councils (SSCs) in Seva Bharti Kendra Skill Development Center.

Objectives

- Increase in Rural/Local Economy
- Enhance employment opportunities
- Reduce forced migration due to lack of local opportunities
- Conservation of natural resources

National Skill Development Corporation (NSDC)?

- The NSDC is a non-profit public limited company established on July 31, 2008, under Section 25 of the Companies Act, 1956.
- The Ministry of Finance established NSDC as a Public Private Partnership (PPP) model.
- The Government of India, through the Ministry of Skill Development and Entrepreneurship (MSDE), owns 49% of NSDC, while the private sector owns the remaining 51%.
- The organisation provides funding to develop scalable and successful initiatives for vocational training.

Switch Mobility EiV 22

Economy

Why in the news?

- Union Minister for Road Transport & Highways, Shri Nitin Gadkari recently launched India's first AC double-decker electric bus named 'Switch EiV 22' developed by Ashok Leyland in Mumbai.

Switch EiV 22 - Features

- The Switch EiV 22 is a double-decker AC bus which is based on its single-deck version called EiV 12.
- The EiV 22 will have a total seating capacity of 65 passengers, with more space available on the lower deck for standing occupants.
- Despite increasing its seating capacity, the overall weight of the bus has grown only by 18%, which helps it retain its range in comparison to its single-deck version.



- The bus can gain a 100km of range with just a 45min charge, while a full charge takes 80 minutes and has a Nickel, Manganese and Cobalt (NMC) battery that comes with an 8-year warranty.
- The 'Switch EiV 22' can ferry nearly twice the number of seated passengers as compared to a single-decker bus, with just 18% increase in kerb weight (without the passengers).
- The electric bus has contemporary styling with feel-good interiors and exteriors. With wide front and rear doors, two staircases and an emergency door, the bus boats of the latest safety standards.

Mithila Makhana

Economy

Why in the news?

- Bihar's Mithila Makhana has been awarded the Geographical Indication (GI) Tag by the Union Government.
- This is fifth product from Bihar which is awarded the GI Tag.

About Makhana

- Mithila Makhana is also simply known as 'makhan'. Its botanical name is 'Euryale Ferox Salisb' and it is a special variety of aquatic fox nut.
- It is believed that the food is famously consumed during Kojagara Puja by **Maithil Brahmins**, who celebrate it for newly-married couples.
- Bihar harvests 80% of India's total Makhana or Fox Nut supply.
- Its Botanical name is Euryale Ferox Salisb. This special variety of Aquatic Fox Nut is cultivated in the Mithila region of Bihar and adjoining areas of Nepal.
- Makhana is generally hailed as a **healthy Indian snack**. According to the Indian Journal of Traditional Knowledge, these seeds are edible after they are processed.
- They grow on a leaf in a pond, before they are collected, washed and sun-dried for hours. After that, they are roasted in a pan at a high flame. Following this, their outer shells are broken and the white puff comes out.
- Fox Nuts are rich in protein and fiber and have various micro-nutrients such as magnesium, calcium, phosphorous and iron.
- It is said to be low in cholesterol, fat and sodium, and also an ideal **weight-loss snack** as it is low in calories.
- They also help one to overcome insomnia and arthritis, and improve cognitive functions.
- Interestingly, **Mithila Makhana** — which, as indicated by its name, is cultivated in the Mithila region of Bihar and some parts of Nepal is the fifth product from Bihar which has received the GI tag. Prior to this, Bhagalpur's Jardalu Mango, Katarni Dhaan (rice), Nawada's Maghai Paan and Muzaffarpur's Shahi Litchi have been recognised.



About GI tag

- According to World International Property Organization or WIPO, a GI or Geographical Indication Tag is used for products which have specific geographical origin or have qualities that can be attributed specifically to the region.
- In addition, the qualities, characteristics or reputation of the product should be essentially due to the place of origin.
- Once a product gets this tag, any person or company cannot sell a similar item under that name.
- This tag is valid for a period of 10 years following which it can be renewed.

Significance

- With this move Fox Nuts farmers will get the maximum price for their premium produce.
- Over 5 lakh farmers of Mithila region of Bihar will be benefitted from this decision.

Why in the news?

- MCA21 version-3.0 is a technology-driven forward-looking project, envisioned to strengthen enforcement, promote Ease of Doing Business and enhance user experience. MCA21 version-3.0 rollout has been planned in phases to ensure minimum disruption in regulatory filings.

About MCA 21

- It will leverage the use of latest technologies to further streamline the Corporate Compliance and stakeholders experience. MCA21 is the online portal of the Ministry of Corporate Affairs (MCA) that has made all company related information accessible to various stakeholders and the general public. It was launched in 2006.
- The entire project is proposed to be launched within the Financial Year 2021-22 and will be data analytics and machine learning driven.
- The MCA21 V3.0 in its entirety will not only improve the existing services and modules, but will also create new functionalities like e-adjudication, compliance management system, advanced helpdesk, feedback services, user dashboards, self-reporting tools and revamped master data services.
- It comprises a revamped website, new email services for MCA Officers and two new modules, namely, e. Book and e. Consultation.
- MCA21 is an e-Governance initiative of Ministry of Corporate Affairs (MCA) that enables an easy and secure access of the MCA services to the corporate entities, professionals and citizens of India.
- This will help the business community to meet their statutory obligations.

One Nation One Fertiliser**Economy****Why in the news?**

- One Nation, One Fertiliser (ONOF) programme will be implemented across the country from October starting with urea and later crop nutrients di-ammonium phosphate (DAP) or muriate of potash (MOP) will be sold under a single brand name, 'Bharat'.

About the scheme

- Under the new "One Nation One Fertiliser" scheme, companies are allowed to display their name, brand, logo and other relevant product information only on one-third space of their bags.
- On the remaining two-thirds space, the "Bharat" brand and Pradhanmantri Bharatiya Jan Urvarak Pariyojana logo will have to be shown.
- The single brand name for UREA, DAP, MOP and NPK etc. would be BHARAT UREA, BHARAT DAP, BHARAT MOP and BHARAT NPK etc. respectively for all Fertiliser Companies, State Trading Entities (STEs) and Fertiliser Marketing Entities (FMEs).

Significance

- The **maximum retail price** of urea is currently fixed by the government, which compensates companies for the higher cost of manufacturing or imports incurred by them.
- The MRPs of non-urea fertilisers are, on paper, decontrolled. But companies cannot avail of subsidy if they sell at MRPs higher than that informally indicated by the government.
- Simply put, there are some 26 fertilisers (inclusive of urea), on which government bears subsidy and also effectively decides the MRPs;
- Apart from subsidising and deciding at what price companies can sell, the **government also decides where they can sell.**
- This is done through the Fertiliser (Movement) Control Order, 1973.
- Under this, the department of fertilisers draws an agreed monthly supply plan on all subsidised fertilisers in consultation with manufacturers and importers.
- This supply plan is issued before the 25th of each month for the following month, with the department also regularly monitoring movement to ensure fertiliser availability as per requirement, including remote areas.
- When the government is spending vast sums of money on fertiliser subsidy (the bill is likely to cross Rs 200,000

crore in 2022-23), plus deciding where and at what price companies can sell, it would obviously want to take credit and send that message to farmers.

Issues

- It will disincentivise fertiliser companies from undertaking marketing and brand promotion activities. They will now be reduced to contract manufacturers and importers for the government. Any company's strength ultimately is its brands and farmer trust built over decades.
- Currently, in case of any bag or batch of fertilisers not meeting the required standards, the blame is put on the company. But now, that may be passed on fully to the government. Politically, the scheme might well boomerang rather than benefit the ruling party.

Haridwar is a aspirational district in India

Economy

In News

- The NITI Aayog has declared the holy city of Haridwar in Uttarakhand as the best aspirational district on five parameters.

Aspirational District Programme

- The programme was launched in January 2018 aims to quickly and effectively transform some of most underdeveloped districts of the country.
- This scheme has been implemented along with the central and state schemes. In its successful implementation, there is important cooperation of the 'in-charge' officers of the central, state level and district collectors.
- The competition between these districts is maintained through equated monthly delta rankings, so that they are eager to make it a success.
- The ranking of aspirational districts combines innovative use of data with practical governance, placing the district at the center of inclusive growth.
- As per the norms for planning of aspirational districts, each district should prepare an action plan in consultation with the State and Central officers in charge, after which it should be sent to NITI Aayog for final approval of the Empowered Committee of Secretaries constituted for the programme.

Parameters

It envisages rapid development of selected districts on basis of composite index based on five parameters

- health and nutrition,
- education,
- financial inclusion and skill development,
- agriculture and water resources
- basic infrastructure



Why in news?

- Union Minister for Education & Skill Development and Entrepreneurship Dharmendra Pradhan held a bilateral meeting and co-chaired the 6th meeting of AIEC with Australian Counterpart at Western Sydney University (WSU).

About Australia India Education Council (AIEC)

- The AIEC is a bi-national body chaired by the Education Ministers of India and Australia to expand collaboration in education, training and research.
- The AIEC is a 'working council' of representatives from government, academia and industry.
- The AIEC provides a forum for members to collaborate with Ministers in deciding major bilateral education priorities for the coming year.
- The inaugural meeting of the AIEC was held in New Delhi in August 2011.
- Australian Education International (AEI) is the international arm of the Australian Government Department of Industry, Innovation, Science, Research and Tertiary Education.

Why in the news?

- Ministry of Road Transport and Highways has recently issued a notification for greater facilitation of citizens in the issue of International Driving Permit (IDP) across the country.

What is International Driving Permit (IDP)

- It is issued to an applicant who holds a valid Indian Licence and who is a resident of India.
- The application shall be made in Form 2 or in writing to the RTO within whose jurisdiction the applicant resides, specifying the countries to be visited and the duration of stay etc.
- **India, being a signatory to Convention on International Road Traffic of 1949 (Geneva Convention), is required to issue IDP** as provided under this Convention, for the acceptance of the same on reciprocal basis with other countries.
- Currently, the format, size, pattern, colour etc. of the IDP being issued was differing across States in India.
- Due to this, many citizens were facing difficulties with their respective IDP in foreign countries.
- Now, through this amendment, the format, size, colour etc. for IDP has been standardized for issuance across India, and in adherence to the Geneva Convention.
- **A comparison of vehicle categories across various Conventions and Central Motor Vehicle Rules, 1989** has also been added for facilitation of regulatory authorities.

Convention on International Road Traffic of 1949(Geneva Convention)-

- It is an international treaty promoting the development and safety of international road traffic by establishing certain uniform rules among the contracting parties.
- The convention addresses minimum mechanical and safety equipment needed to be on board and defines an identification mark to identify the origin of the vehicle.
- The Convention was prepared and opened for signature by the United Nations Conference on Road and Motor Transport held at Geneva from 23 August to 19 September 1949. It came into force on 26 March 1952. This conference also produced the Protocol on Road Signs and Signals.
- There is a European Agreement supplementing the 1949 Convention on Road Traffic, in addition to the 1949 Protocol on Road Signs and Signals, concluded in Geneva on 16 September 1950.

Why in the news?

- Union Cabinet has recently approved the ratification of amendments to the Constitution of the UPU signed during the 27th Congress of the UPU held at Abidjan (Cote d'Ivoire) from 9-27 August, 2021.

About the ratification

- The approval enables the Department of Posts, Government of India to have the "Instrument of Ratification" signed by the Hon'ble President of India and have the same deposited with the Director General of the International Bureau of the Universal Postal Union.
- This would fulfil the obligations arising from Article 25 and 30 of the UPU Constitution which provides for ratification of the amendments to the Constitution adopted by a Congress as soon as possible by the member countries.
- It would resolve many long-standing discrepancies in the text and accommodate provisions for 'acceptance or approval' of the Acts in consistency with Vienna Conventions on Law of Treaties, 1969.

Universal Postal Union-

- The UPU was established by the Treaty of Bern of 1874.
- It is a specialized agency of the United Nations (UN) that coordinates postal policies among member nations, in addition to the worldwide postal system.
- The UPU's headquarters are located in Bern, Switzerland.
- The UPU contains four bodies consisting of
 - The Congress.
 - The Council of Administration (CA).
 - The Postal Operations Council (POC) and
 - The International Bureau (IB).
- It also oversees the Telematics and Express Mail Service (EMS) cooperatives.
- Any member country of the United Nations may become a member of the UPU.
- Any non-member country of the United Nations may become a UPU member provided that its request is approved by at least two-thirds of the member countries of the UPU.
- With its 192 member countries, the organization fulfils an advisory, mediating and liaison role, and provides technical assistance where needed.
- The union sets the rules for international mail exchanges and makes recommendations to stimulate growth in mail, parcel and financial services volumes and improve quality of service for customers.

Regional Standardization Forum**International Relation****Why in the news?**

- As a part of the celebrations during **Azadi ka Amrit Mahotsav**, Ministry of Communication has recently hosted the **International Telecommunication Union's Regional Standardization Forum (RSF) for Asia and Oceania region**.

Regional Standardization Forum (RSF):

- It is a platform for constructive exchange of ideas, discussing standardization topics in various sectors of technology and the Role of ITU Standards.

International Telecommunication Union (ITU):

- It is an agency of the United Nations (UN).
- Originally founded in 1865, as the International Telegraph Union, the ITU is the oldest existing international organization.
- **Aim:** To coordinate telecommunication operations and services throughout the world.
- **Headquarters:** Geneva, Switzerland.

The ITU consists of three sectors:

- Radiocommunication (ITU-R): ensures optimal, fair and rational use of the radio frequency (RF) spectrum.
- Telecommunication Standardization (ITU-T): formulates recommendations for standardizing telecommunication operations worldwide.
- Telecommunication Development (ITU-D): assists countries in developing and maintaining internal communication operations.

Functions of ITU:

- It coordinates the world's satellites through management of spectrum and orbits, bringing television, vehicle GPS navigation, maritime and aeronautical communications, weather information in various parts of the planet.
- It makes Internet access possible; majority of Internet connections are facilitated by ITU standards.
- It helps support communications in the wake of disasters and emergencies – through on-the-ground assistance, dedicated emergency communications channels, technical standards for early warning systems.
- It works with the industry to define the new technologies that will support future networks and services.
- It works with public and private sector partners to ensure that information technology access and services are affordable, equitable and universal.
- It empowers people around the world through technology, education and training.

International North South Transport Corridor

International Relation

Why in the news?

- Recently, the movement of containers from Russia's Astrakhan port to Nhava Shiva port in Mumbai has signalled the launch of the International North South Transport Corridor (INSTC).

About the International North South Transport Corridor (INSTC)-

- INSTC is a **7,200-km multi-modal transport corridor that combines road, rail and maritime routes connecting Russia and India via central Asia and Iran.**
- INSTC links the Indian Ocean to the Caspian Sea via the Persian Gulf.
- The primary objective of the INSTC project is to reduce costs in terms of time and money over the traditional route currently being used
- The corridor also aims to increase trade connectivity between major cities such as Mumbai, Moscow, Tehran, Baku, Bandar Abbas, Astrakhan, Bandar Anzali, etc
- The legal framework for the INSTC is provided by a trilateral agreement signed by India, Iran and Russia at the Euro-Asian Conference on Transport in 2000.
- Since then Kazakhstan, Belarus, Oman, Tajikistan, Azerbaijan, Armenia and Syria have signed instruments of accession to become members of the INSTC.
- Once fully operational, the INSTC is expected to reduce freight costs by 30% and journey time by 40% in comparison with the conventional deep sea route via the Suez Canal.
- India's investment in the INSTC is exemplified by its involvement in Iran's Chabahar port and the construction of a 500-km Chabahar-Zahedan railway line.
- Once completed, this infrastructure will allow India access to Afghanistan and central Asia, a prospect strengthened by the Taliban government's support for the project.
- The India Ports Global Limited, a joint venture between the Jawaharlal Nehru Port Trust and Kandla Port Trust, will develop the port along with Iran's Aria Banader.
- INSTC provides an opportunity for the internationalisation of India's infrastructural state, with state-run businesses taking the lead and paving the way for private companies.
- With the INSTC, India can now bypass Pakistan to access Afghanistan, central Asia and beyond.
- It can shape a north-south transport corridor that can complement the east-west axis of the China-led Belt and Road Initiative (BRI)

Why in the news?

- Union Cabinet was apprised of the signing of Contract between the OECD, France on behalf of the International Transport Forum and the Technology Information, Forecasting and Assessment Council (TIFAC), India to support the International Transport Forum (ITF) activities on the Indian Transport Sector.
- **About International Transport Forum (ITF)-**
- The International Transport Forum at the Organisation for Economic Cooperation and Development(OECD) is an **intergovernmental organisation** with 64 member countries.
- It **acts as a think tank for transport policy** and organises the Annual Summit of transport ministers.
- ITF is the **only global body that covers all transport modes**. The ITF is **administratively integrated with the OECD**, yet politically autonomous.
- The **ITF works for transport policies that improve peoples' lives**.
- **Its mission is** to foster a deeper understanding of the role of transport in economic growth, environmental sustainability and social inclusion and to raise the public profile of transport policy.
- The ITF organises global dialogue for better transport. It acts as a platform for discussion and pre-negotiation of policy issues across all transport modes.
- It analyses trends, shares knowledge and promotes exchange among transport decision-makers and civil society.
- **The ITF's Annual Summit is the world's largest gathering of transport ministers and the leading global platform** for dialogue on transport policy.

UN High Seas Treaty

International Relation

Why in news?

- Recently, Negotiations involving 168 countries, including the European Union, to agree on a UN treaty for protecting oceans has failed.

About UN High Seas treaty

- **Also referred to as the 'Paris Agreement for the Ocean'**, the treaty to **deal with Biodiversity Beyond National Jurisdiction** has been under discussion for several years.
- **The proposed treaty concerns the ocean existing beyond the Exclusive Economic Zones that lie from the coast of a country to about 200 nautical miles or 370 km into the sea**, till where it has special rights for exploration. **Waters beyond that are known as open seas or high seas.**
- In June 2022, UN Secretary-General Antonio Guterres had declared an "**ocean emergency**" at the UN Ocean Conference in Lisbon, Portugal, citing threats to the world's oceans.
- **The treaty was to be negotiated under the United Nations Convention on Laws of the Sea (UNCLOS) of 1982** which governs the rights of countries regarding marine resources.
- As there is no treaty for conserving the health of vast swathes of the earth's oceans, a **UN resolution in 2017 had decided to rectify this while setting 2022 as the deadline.**
- The pandemic resulted in many delays, and later, a **High Ambition Coalition, which now has more than 100 countries including India, the US, and the UK, came about and put the focus on '30×30' goals** – protecting 30% of the ocean by 2030.
- After the latest deadlock, talks will only resume in 2022, unless a special session is called.
- **Some aspects of negotiations included establishing marine protected areas to put limits on certain activities, environmental impact assessments or clearances for sustainability of works, financial support to countries and sharing other scientific knowledge**

Why in news?

- In a unique move Egypt Post released a commemorative postage stamp to celebrate 75 years of diplomatic relations between Egypt and India.

Evolution of India- Egypt relations

- **Ancient times-** India's relations with Egypt began when the trade contacts between the two ancient civilizations grew along the banks of the river Nile and the river Indus.
- **Under Nehru's leadership-** In 1955, Egypt under Gamal Abdel Nasser and India under Jawaharlal Nehru became the founders of the Non-Aligned Movement.
- During the 1956 War, Nehru stood supporting Egypt to the point of threatening to withdraw his country from the British Commonwealth.
- **Friendship Treaty & bilateral relations** The two nations became even closer in the 1950s and concluded a historic Friendship Treaty in 1955.
- During the last couple of years, the traditionally strong bilateral relations enjoyed by the two countries have received an impetus with regular exchange of high-level meetings and contacts between the two sides.
- **Trade & Commerce-** Egypt has traditionally been one of India's most important trading partners in the African continent.
- The India-Egypt Bilateral Trade Agreement has been in operation since March 1978 and is based on the Most Favoured Nation clause.
- **Major Egyptian exports to India include-** Raw cotton, raw and manufactured fertilizers, oil and oil products, organic and non-organic chemicals, leather and iron products.
- **Major imports into Egypt from India are-** Cotton yarn, sesame, coffee, herbs, tobacco and lentils.
- Mineral fuel; vehicle parts; Ship, boat and floating structure; cuts of boneless bovine frozen meat; and Electrical machinery and parts are also exported from India.
- **Technical and Scientific Cooperation-** Technical cooperation and assistance have been a major part of the bilateral relationship.
- Egyptian candidates visit India under the Indian Technical and Economic Cooperation Programme (ITEC).
- In the field of Scientific Cooperation, ICAR and the Agricultural Research Center of the Ministry of Agriculture & Land of Egypt signed a MoU for cooperation in the field of agricultural research in 1998.
- **Cultural Links-** The Maulana Azad Centre for Indian Culture (MACIC) was set up in Cairo in 1992
- It aims to promote cultural cooperation between the two countries, through the implementation of the Cultural Exchange Programme (CEP).
- The Centre, in addition to popularizing Indian culture through Hindi, Urdu and Yoga classes and the screening of movies, also organizes cultural festivals.
- **'India by the Nile' festival-** It is a cultural festival celebrated annually in Egypt.
- It brings the essence of India through classical, contemporary, performing and visual arts, food and popular culture in a language that amalgamates diverse cultural and artistic strands.
- The festival is produced by Delhi-based M/S Teamwork Arts and supported by ICCR and the Egyptian Ministry of Culture.
- **The defence partnership-** It is being revived with among other developments the visit of the Indian Navy ship to Egypt, a month-long Air Force exercise and the visit of the Egyptian Air Force chief to India in recent months.

Why in news?

- China and Nepal have agreed to build the so-called Trans-Himalayan Multi-Dimensional Connectivity Network.

About the Network

- The network, under China's Belt and Road initiative, will involve the building of railways and communication networks.



- The BCIM economic corridor aims to connect Kolkata with Kunming, the capital of the Yunnan province through Myanmar and Bangladesh. It envisages the formation of a thriving economic belt, focusing on cross-border transport, energy and telecommunication networks.
- Under the agreement, China will finance the feasibility study of a China-Nepal cross-border railway.
- Experts from China will visit to Nepal to do surveys in 2022.
- Trans-Himalayan Multi-Dimensional Connectivity network will be constructed under Belt & Road Initiative of China. Under it, railways and communication networks will be constructed.
- The construction of this network was appreciated by Chinese President as switching Nepal "from a landlocked to a land-linked country".
- The network comprises of multiple transportation infrastructure projects, one such project being "China– Nepal railway". China-Nepal railway project is at feasibility study stage.



EU Proposal to Revive Nuclear Deal

International Relation

Why in news?

- A European Union proposal to revive the 2015 Iran nuclear deal "can be acceptable if it provides assurances" on Tehran's key demands.

Historical background

- Proposals by the EU can be acceptable if they provide Iran with assurance on the issues of safeguards, sanctions and guarantees, the diplomat said.
- The Islamic Republic has sought to obtain guarantees that no future U.S. president would renege on the deal if it were revived, as then-President Donald Trump did in 2018 and restored harsh U.S. sanctions on Iran.
- The 2015 Pact seemed near revival. But 11 months of indirect talks between Tehran and the Biden administration in Vienna were thrown into disarray chiefly over Iran's insistence that Washington removes its elite Revolutionary Guards Corps from the U.S. Foreign Terrorist Organization's list.
- On August 10, the United States charged a Revolutionary Guards member with plotting to murder John Bolton, a national security adviser to Trump, though Washington said it did not believe the charges should affect the nuclear talks with Tehran.

JCPOA

- The JCPOA was the result of prolonged negotiations between 2013 and 2015 between Iran and P5+1 (China, France, Russia, the United Kingdom, the United States + Germany).
- Under the deal, Iran agreed to significantly cut its stores of centrifuges, enriched uranium and heavy water, all key components for nuclear weapons.
- Iran also agreed to implement a protocol that would allow inspectors from the International Atomic Energy Agency (IAEA) to access its nuclear sites to ensure Iran would not be able to develop nuclear weapons in secret.



Why in the news?

- The National Cancer Grid (NCG) has recently established the Koita Centre for Digital Oncology (KCDO) to promote use of digital technologies and tools to improve cancer care across India.

What is the National Cancer Grid?

- **The National Cancer Grid (NCG) is an initiative of the Government of India** through the **Department of Atomic Energy** and its grant-in-aid institution, the Tata Memorial Centre.
- The NCG was created to form a union of cancer centres in the country which could provide uniform and high standards of cancer care
- It seeks to create a network of cancer centres, research institutes, patient groups and charitable institutions across India with the objective of developing uniform standards of patient care for prevention, diagnosis, and treatment of cancer; providing specialized training and education in oncology and facilitating collaborative basic, translational and clinical research in cancer.
- NCG today has over 270 hospitals in its network across India.

Why in the news?

- The Union Cabinet has recently approved a proposal to widen access of the Traditional Knowledge Digital Library (TKDL) database to users, besides patent offices.

About Traditional Knowledge Digital Library(TKDL)-

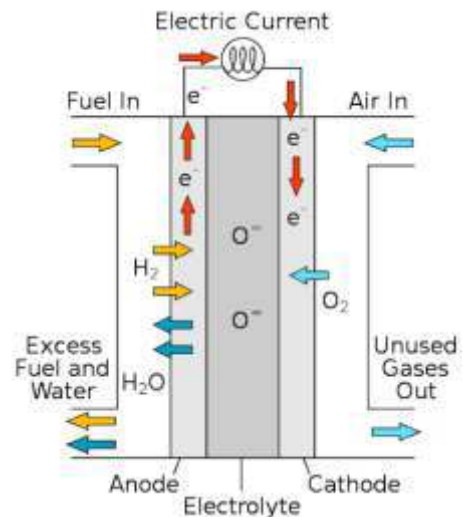
- The TKDL is **an Indian digital knowledge repository of traditional knowledge**, especially about medicinal plants and formulations used in Indian systems of medicine.
- **Set up in 2001, as a collaboration between the Council of Scientific and Industrial Research (CSIR) and the Ministry of Ayush.**
- **The objective of the library is to protect the ancient and traditional knowledge of the country from exploitation through biopiracy and unethical patents**, by documenting it electronically and classifying it as per international patent classification systems.
- **It provides information in languages and format understandable by patent examiners** at Patent Offices worldwide, to prevent the erroneous grant of patents.
- The **TKDL currently contains information from existing literature related to Indian Systems of Medicine** such as Ayurveda, Unani, Siddha, Sowa Rigpa and Yoga.
- The **information is documented in a digitized format in five international languages** which are English, German, French, Japanese and Spanish.
- Until now, access to the complete TKDL database is restricted to 14 Patent Offices worldwide for the purposes of search and examination.
- The approval of the Cabinet to widen the access of the database beyond patent offices lays emphasis on integrating and co-opting traditional knowledge with current practices towards enhancing innovation and trade.
- The recent move by the government is aimed to drive research & development, and innovation based on India's traditional knowledge.

Why in the news?

- A new hydrogen fuel cell has been developed by scientists at The Hong Kong University of Science and Technology (HKUST). Not only is it the world's most durable to date, but it is also more cost-effective, paving the way for a wider application of green energy in the pursuit of a carbon-neutral world.

Hydrogen fuel cells

- They generate power efficiently by converting hydrogen and oxygen into electricity.
- Zero carbon dioxide, particulate matter and other air pollutants are emitted in the process.
- Hydrogen fuel cells are not yet widely commercialized, despite they have several environmental benefits. This is so, because power generation capabilities of hydrogen fuel cell depend on an electrocatalyst. The electrocatalyst earlier comprised of very expensive and rare metal platinum.
- Thus, researchers have tried to develop its alternatives by replacing platinum with more common and inexpensive materials such as iron, nitrogen or carbon.
- However, these alternative materials have either been proven inefficient in power generation or had poor durability.



'Black Widow'

Science & Technology

Why in the news?

- Scientists have measured the mass of a neutron star named PSR J0952-0607, and found that it's the most massive neutron star discovered yet, clocking in at a whopping 2.35 times the mass of the Sun. The neutron star classified as a "black widow" has a mass about 2.35 times greater than that of our sun.

About Black Window

- The neutron star is wildly spinning at 707 times per second.
- It has been observed the most massive known example of an object called a neutron star.
- This neutron star inhabits what is called a binary system, in an orbit with another star.
- The neutron star is a kind dubbed a "black widow," named in honor of female black widow spiders that eat their male partners after mating.
- It apparently was born with the usual mass of a neutron star, about 1.4 times that of our sun, but its gravitational pull poached material from its companion star, enabling it to grow to a mass seemingly at the uppermost limit before physics would dictate a collapse into a black hole, the densest of all known objects.
- It has swallowed nearly a full sun's worth of mass without yet becoming a black hole. So it should be just on the edge of black hole collapse.

Neutron Star

- A neutron star is like one giant nucleus, but when you have one-and-a-half solar masses of this stuff, which is about 500,000 Earth masses of nuclei all clinging together, it's not at all clear how they will behave.
- Neutron stars are the collapsed cores of massive stars that were between around 8 and 30 times the mass of the Sun, before they went supernova and blew most of their mass off into space.
- These cores, tending to be around 1.5 times the mass of the Sun, are among the densest objects in the Universe; the only thing denser is a black hole.

Langya Virus

Science & Technology

Why in the news?

- Langya henipavirus, is suspected to have caused infections in 35 people in China's Shandong and Henan provinces over roughly a two-year period to 2021.

About the virus

- The Novel Langya Henipavirus (LayV) is a type of henipavirus, a category of zoonotic viruses which can jump from animals to humans.



- Henipaviruses can cause severe illness in animals and humans, and currently, there are no licensed drugs or vaccines meant for humans. Hence, it is slightly incurable.
- Since the LayV virus RNA has been predominantly found in shrews, that might be its natural hosts.
- As believed, Langya was discovered in eastern China during surveillance testing of fever-affected patients with a recent history of animal exposure.
- Symptoms of the virus include fever, fatigue, cough, nostalgia, headaches and vomiting. Further, the patients were accompanied by abnormalities of leukopenia, thrombocytopenia, and kidney and liver dysfunction.
- Thrombocytopenia is low platelet count, whereas leukopenia means a fall in the white blood cell count, in turn decreasing the body's immunity or disease-fighting capability.
- The Langya virus is from the same family as the deadly Nipah and Hendra viruses.
- The Hendra & Nipah viruses have an estimated mortality rate of between about 40-70%.
- So far, there is no evidence that the Langya virus can transmit among humans.
- Hendra virus was first reported in Queensland in 1994, when it caused the deaths of horses and the trainer Vic Rail.
- Many outbreaks in horses have been reported in Queensland and northern New South Wales since, and are generally thought to be due to "spillover" infections from flying foxes.

E-RaktKosh Web Portal

Science & Technology

Why in the news?

- It is primarily the responsibility of the State/UT Government to take concrete steps to prevent illegal activities taking place in blood banks and during blood transfusion.

About the portal

- The **e-RaktKosh** web portal of Government of India, provides the interface for Blood Banks data management and integration.
- For this, all blood banks have been advised to register on e-RaktKosh web-portal.
- Government has made registration of blood banks mandatory as per the provisions of Drugs and Cosmetic Act and Rules thereunder.
- Further, Government has notified Drugs and Cosmetics (Second Amendment) Rules, 2020 which pertain to functioning of Blood Banks/centres, Blood processing and related matters.
- Government of India through Blood Transfusion Services also supports 1131 Blood Banks in the public and charitable sector in respect of manpower, procurement of Blood Bags and testing kits, conducting Voluntary Blood Donation (VBD) camps and Information Education Communication (IEC) activities etc.

Gravitational Lensing

Science & Technology

Why in the news?

- USA's space agency NASA had launched James Webb Space Telescope (JWST) in 2021, which will use a natural phenomenon called "gravitational lensing" to carry out astronomical observations.

Gravitational Lensing

- The phenomenon of gravitational lensing occurs when a huge amount of matter, such as a massive galaxy, cluster of galaxies or a black hole, creates a gravitational field that distorts and magnifies the light from objects behind it.
- Gravitational lensing is based on Einstein's theory of general relativity (Mass bend light).
- Normal lenses such as the ones in a magnifying glass work by bending light rays that pass through them in a process known as refraction, in order to focus the light somewhere else.
- Similarly, the gravitational field of a massive object causes light rays passing close to that object to be bent and refocused somewhere else.
- The more massive the object, the stronger its gravitational field and hence the greater the bending of light rays - just like using denser materials to make optical lenses results in a greater amount of refraction.
- In effect, gravitational lenses act like natural cosmic telescopes.



- The effect allows researchers to study the details of early galaxies too far away to be seen otherwise with even the most powerful space telescopes.
- However, gravitational lensing is very rare as it requires a distant star, black hole and the observer on earth to be well-aligned.
- Also, it can help astronomers to know about black holes, dark matter, etc.

Astrobee

Science & Technology

Why in the news?

- Astrobee is NASA's new free-flying robotic system.

Features of Astrobee

- Astro Bees are **NASA's new cube-shaped free-flying robotic system**. These robots are cube-shaped and about 32 centimetres wide.
- The **three Astrobee robots, named Queen, Bumble and Honey** propel themselves around in the microgravity environment of the ISS using electric fans.
- The three robots **propel themselves using electric fans that allow them to fly** through the microgravity environment of the International Space Station.
- They "look around" and **navigate their surroundings using cameras and sensors**.
- All of the robots are **equipped with a perching arm that allows them to grasp handrails** to either conserve energy or grab and hold items.
- When they are running low on charge, they can **automatically return to their docking station to begin recharging**.
- Not only will the Astrobee robots **make space missions safer and more cost-effective** but Astrobees could **manage routine chores** that would free up human operators for more complex work.
- They also **consist of a system that serves as a research platform** that can be outfitted and programmed to conduct microgravity experiments.
- Until now, Astrobee robots have operated on the International Space Station one at a time or with support from human operators.
- The Astrobee robots are **built on the knowledge acquired from operating SPHERES (Synchronised Position Hold, Engage, Reorient, Experimental Satellite) robots** which have been operating on the International Space Station for over a decade.
- Once fully commissioned, the Astrobee system will take over for SPHERES as the space station's robotic test facility.
- Astrobee robots could be instrumental in future spacecraft that won't be crewed year-round like the Gateway space station planned to orbit the Moon.
- Such spacecraft will need autonomous robots to keep things running while humans are away.

NAVIC System

Science & Technology

Why in the news?

- Government says, India's satellite-based navigation system, NavIC, is as good as GPS of the United States in terms of position accuracy and availability in its service region.

About NAVIC

- Navigation in Indian Constellation (NavIC) is an Indian Regional Navigation Satellite System (IRNSS), developed by the Indian Space Research Organization (ISRO).
- IRNSS consists of eight satellites, three satellites in geostationary orbit & five satellites in geosynchronous orbit.
- The main objective is to provide reliable position, navigation and timing services over India and its neighbourhood.
- It works just like the established and popular U.S. Global Positioning System (GPS) but within a 1,500-km radius over the sub-continent.
- It has been certified by the 3rd Generation Partnership Project (3GPP), a global body for coordinating mobile telephony standards.



Benefits

- NavIC can help in navigation on land, air, sea and also in disaster management.
- NavIC satellites are placed at a higher orbit than the GPS of United States. NavIC satellites are placed in geostationary orbit (GEO) & geosynchronous orbit (GSO) with an altitude of about 36,000 km; GPS satellites are placed in medium earth orbit (MEO) with an altitude of about 20,000 km.
- NavIC uses dual frequency bands, which improves accuracy of dual frequency receivers by enabling them to correct atmospheric errors through simultaneous use of two frequencies.
- It also helps in better reliability and availability because the signal from either frequency can serve the positioning requirement equally well.
- The coverage area was designed to cover Indian Territory and surrounding 1500 km of Indian borders.

DGDE-developed software to ensure optimum utilisation of defence land

Science & Technology

Why in the news?

- Raksha Mantri Shri Rajnath Singh has called upon Central and State Government Departments to ensure foolproof management of land for India to become a global manufacturing hub.

CoE- SURVEI

- The CoE-SURVEI was set up by Directorate General Defence Estates (DGDE), Ministry of Defence to promote the use of emerging technologies in land surveys, analysis of data & land management.
- In the last few months, the Centre has developed a number of softwares in collaboration with Bhabha Atomic Research Centre, Visakhapatnam; Bhaskaracharya National Institute for Space Applications and Geo-informatics, Gandhinagar; National Remote Sensing Centre; IIT Delhi and other Central Government organisations for effective land management.

Land use Analysis Software

- The Land Use Analysis software, developed with active participation of Nascent Infotechnologies Pvt Ltd, can analyse any place located in any part of the country through GIS and Remote Sensing (RS) technologies.
- The Raksha Mantri stated that the tool will prove to be helpful not only for Ministry of Defence, but other Government and State departments as well, ensuring optimum utilisation of existing land.
- The Artificial Intelligence (AI)-based Change Detection Software detects unauthorised constructions & encroachments on defence land.
- The application, which uses National Remote Sensing Centre's satellite imagery, has been installed in all 62 cantonment boards.
- Through the software, Chief Executive Officers (CEOs) of Cantonment Boards are able to identify changes on ground that are of permanent nature, enabling them to check if such changes are authorised or without due sanction of the competent authority.
- According to the **Digital India Land Records Modernisation Programme** (DILRMP-MIS 2.0), land records of about 94% villages have been computerised. With this, people are able to get a clear title of their land.

Ebola Virus Cases

Science & Technology

Why in the news?

- Ebola virus cases were discovered in Africa recently.

About Ebola Virus Disease (EVD)

- Ebola virus disease (EVD), formerly known as Ebola haemorrhagic fever, is a rare but severe, often fatal illness in humans.
- The virus is transmitted to people from wild animals and spreads in the human population through human-to-human transmission (Zoonotic disease).
- It is thought that fruit bats of the Pteropodidae family are natural Ebola, virus hosts.

- **Symptoms:**
 - Fever, fatigue, muscle, pain, headache, and sore throat.
 - This is followed by vomiting, diarrhoea, rash, symptoms of impaired kidney and liver function, and in some cases internal and external bleeding.
- **Measures:**
 - Community engagement is key to successfully controlling outbreaks.
 - Supportive care - rehydration with oral or intravenous fluids - and treatment of specific symptoms improve survival.
 - A range of potential treatments including blood products, immune therapies and drug therapies are currently being evaluated.

India's first commercial space situational awareness observatory(SSAO)

Science & Technology

Why in the news?

- India's first commercial space situational awareness observatory will be set up in the Garhwal region of Uttarakhand by Digantara, a space sector start-up.

About observatory

- It will **help India track any activity in space including that of space debris and military satellites** hovering over the region.
- **Currently, the United States is a dominant player in monitoring space debris** with observatories in multiple locations and commercial companies providing additional inputs from across the world.
- The high-quality observations, along with those of its partner ground-based sensor network, would help improve its ability to monitor events occurring in deep space, especially in the geostationary, medium-Earth, and high-Earth orbits.
- With this data, it would be **able to reduce the potential for collisions between satellites and other spacecraft** by making more accurate predictions of their location, speed, and trajectory.
- Observatory will be strategically positioned to serve global space traffic management operations.
- The observatory will also **give India indigenous capabilities to monitor space activity** over the subcontinent.
- With the establishment of the observatory Digantara will be able to supplement its space-based sensors in their mission to monitor satellites and debris in orbits ranging from Low Earth Orbit (LEO) to Geosynchronous Earth Orbit (GEO).
- The addition of the new observatory will be a part of Digantara's network of observational facilities and was expected to work in tandem with the currently planned constellation of space-based sensors.
- This will improve the effectiveness of tracking and identifying pre-existing resident space objects (RSO), and will result in the creation of a hybrid data pool that will serve both the commercial and the defence sectors of the space industry.

DIKSHA Platform

Science & Technology

In News

- DIKSHA is the platform for providing quality e-content for school education in States/UTs and QR coded Energized Textbooks for all grades (**one nation, one digital platform**).

About the platform

- DIKSHA complies with World Wide Web Consortium (W3C) Web Content Accessibility Guidelines (WCAG) 2.0 level AA.
- This enables people with visual impairments to access the website using assistive technologies, such as screen readers.
- Special e-content for visually and hearing impaired is developed on Digitally Accessible Information System (DAISY) and in sign language on NIOS website/ YouTube.



NISHTHA 2.0 (Secondary Level)

- Online on DIKSHA for secondary/senior secondary level teachers was launched on 29th July, 2021.
- The training programme covers around 10 Lakh Teacher and School Heads at Secondary Level across all States and UTs.
- **NISHTHA 2.0** Online on DIKSHA portal has been developed encompassing twelve generic courses and seven pedagogy courses.
- **NISHTHA 3.0**- Foundational Literacy and Numeracy (FLN) in online mode on DIKSHA platform for teachers and school heads of pre-primary to class V were launched on 7th September, 2021.
- **The NISHTHA 3.0** - FLN envisions covering nearly 25 Lakh Teacher and School Heads at Pre-Primary and Primary Level across all states and UTs.
- **NISHTHA 3.0** Online on DIKSHA portal has been developed with the aim to help teachers design experiences for holistic development of each child and comprises of 12 Modules.

Common Weed can offer drought-resistant crops

Science & Technology

Why in the news?

- A common weed — *Portulaca oleracea*, commonly known as purslane, offers important clues about creating drought-tolerant crops in a world beset by climate change.

About the Study

- The study conducted a spatial analysis of gene expression within the leaves of purslane and found that C4 and CAM activity is totally integrated.
- They operate in the same cells, with products of CAM reactions being processed by the C4 pathway. This system provides unusual levels of protection for a C4 plant in times of drought.
- Understanding this novel metabolic pathway could help scientists devise new ways to engineer crops such as corn to help withstand prolonged drought.

Portulaca Oleracea

- Purslane has the evolutionary adaptations that help it to be both highly productive and drought tolerant, an unlikely combination for a plant.
- *Portulaca oleracea* has been used as a folk medicine in many countries, acting as a **febrifuge, antiseptic, and vermifuge**.

Indian Virtual Herbarium

Science & Technology

In News

- With details of about one lakh plant specimens, the Indian Virtual Herbarium, the biggest virtual database of flora in the country, is generating a lot of interest and turning out to be an eye-catching endeavour.

Indian Virtual Herbarium

- A herbarium specimen consists of dried plant parts with labelled information on Scientific name and collection data.
- It has immense use in plant identification, systematics studies and ecological studies.
- The Botanical Survey of India has more than 30,00,000 herbarium specimens preserved in different herbaria located in different parts of the country.
- Developed by scientists of the Botanical Survey of India (BSI), the herbarium was inaugurated by Union Minister of Environment Forest and Climate Change in Kolkata last month.

Significance

- Since launch, the portal ivh.bsi.gov.in has had nearly two lakh hits from 55 countries.
- The portal includes about one lakh images of herbarium specimens.
- Each record in the digital herbarium includes an image of the preserved plant specimen, scientific name, collection locality, and collection date, collector name, and barcode number.



- The digital herbarium includes features to extract the data State-wise, and users can search plants of their own States, which will help them identify regional plants and in building regional checklists.
- Scientists say that there are approximately three million plant specimens in the country which are with different herbaria located at zonal centres of the BSI.
- About 52% of our type specimens are from foreign nations and collected from 82 countries of the world during the British-era.
- The herbarium is also deeply linked with the botanical history of the country.
- The digital herbarium has some of the oldest botanical specimens dating as early as 1696.

Astronomers find extremely aged remnant of galaxies that influence universe's evolution

Science & Technology

In News

- A team of Indian astronomers have discovered extremely aged remnant fossil 'lobes' of a radio galaxy that had become active about 260 million years ago.

Major Findings

- The scientists claimed it was the oldest fossil remnant of a radio galaxy found till date. They added that such fossils contained information of how radio galaxies influenced the course of evolution of our universe.
- A **radio galaxy** is a galaxy with giant regions of radio emission extending well beyond its visible structure. These energetic radio lobes are powered by jets from their active galactic nucleus.
- Each massive galaxy of stars contained a supermassive black hole in its core, which produces jets of charged particles in two opposite directions, once it is active. This relativistic plasma blows huge volumes into the surrounding space, called 'lobes', having emerged from the tip of the jet.
- Such radio fossils can still be detected with large radio telescopes like the Giant Metrewave Radio Telescope (GMRT), from distances of billions of light years.
- **Significance:** Studying such relics or fossil lobes reveal how much energy was pumped into these fossil lobes. The study of such radio galaxies and their giant fossil lobes help us find the evolutionary history of the universe.

Megalodon

Science & Technology

Why in the news?

- Using fossil evidence to create a three-dimensional model, researchers have found new evidence about the life of one of the biggest predatory animals of all time — the Megalodon.

Megalodon

- Megalodons roamed the oceans an estimated 23 million to 2.6 million years ago.
- Megalodon could "completely ingest, and in as few as five bites," a prey as big as the killer whale.
- According to the study, the Megalodon was bigger than a school bus at around 50 feet from nose to tail.
- In comparison, the great white sharks of the present can grow to a maximum length of around 15 feet.
- Using their digital model, the researchers have suggested that the giant transoceanic predator would have weighed around 70 tonnes — or as much as 10 elephants.

Rajiv Gandhi Center of Advanced Technology

Science & Technology

Why in the news?

- On the occasion of Rajiv Gandhi's birth anniversary, Rajasthan Chief Minister Ashok Gehlot inaugurated the 'Rajiv Gandhi Centre of Advanced Technology' (R-CAT) in Jaipur.

R-CAT

- This will provide an opportunity to the youth of the state to learn advanced and emerging technologies in areas



like Artificial Intelligence, Cloud Computing, Cyber Security, Robotics, Machine Learning, Data Analytics.

- The youth will be trained by experts from big companies in these fields. World class IT In the finishing school, youth will get training in advanced technology. Tech graduates will get up to 6 months training in IT technology. This will provide excellent employment opportunities to the youth and they will be able to play an important role in the development of the state.
- The Chief Minister said that to strengthen the IT sector in Rajasthan, the construction of fintech university is going to start in Jodhpur at a cost of Rs 650 crore. Apart from this, institutes of IT education will soon be set up at divisional headquarters in the name of Rajiv Gandhi.
- In order to ensure availability of quality technical manpower as per the demand of the government and industry in the state, R-CAT has been awarded to the Department of Information Technology and Communication under the Rajasthan Societies Registration Act, 1958 in 2022 to conduct certificate courses on a partnership basis with leading IT sector institutions by adopting a world-class certification program. established under the patronage of the Government of Rajasthan.
- Now this institute will be trained by partner institutes on Artificial Intelligence and Machine Learning (AI-ML), Blockchain, Augmented Reality/Virtual Reality (AR/VR), Big Data Analytics, Robotics and Tum Computing etc. and successful candidates will also be given world-class certificates.
- R-CAT will act as a finishing school for the development of youth and working professionals, technical and soft skills to tailor them to industry-driven demand and support start-ups for industry update support, use of already established laboratories etc.

Bent-toed Gecko

Science & Technology

Why in the news?

- A group of researchers has discovered a new species of bent-toed gecko from Agasthyamalai hills in the Western Ghats. The species has been given the common name Aravind's ground gecko after noted malacologist N.A. Aravind.

Aravind gecko

- The new species has been described based on its distinctness in the morphological and molecular DNA data.
- Its scientific name is *Cyrtodactylus aravindi*. It is distinguished from all species of the *-Cyrtodactylus collegalensis* species complex in colour pattern and resembles the Srilankan endemic *C. yakhuna* in overall colouration.
- Currently, Aravind's ground gecko has so far been found only at two locations, Muppanddal and Thuckalay, in Kanyakumari district falling within the Agasthyamalai biosphere reserve in Tamil Nadu.

Number of Women in Science

Science & Technology

Why in news?

- As per the Department of Science and Technology data, the number of women scientists has gone up in over the past two decades.

Major Findings

- More than a quarter 28% of participants in extramural R&D projects in 2018-19 were women, up from 13% in 2000-01 due to various initiatives taken by successive governments.
- The number of women principal investigators in R&D had risen more than four times from 232 in 2000-01 to 941 in 2016-17.
- The percentage of women among researchers went from 13.9% in 2015 to 18.7% in 2018, the data show.
- The increase in women's participation, especially in research, is due to a combination of government programmes and natural progression.
- Results of the All India Survey on Higher Education (AISHE) 2019 showed a 53% and 55% participation of women in science education at the Bachelor's and Master's levels respectively, numbers that are comparable with many developed countries. But at doctoral level, women graduates (44%) lagged behind men (56%).

Concerns

- World Economic Forum (WEF) ranked India at 135 out of 146 countries in its Global Gender Gap (GGG) Index for 2022.
- The 2019 All India Survey on Higher Education shows a significant lag in female participation at doctoral levels, partly owing to the pressures of marriage and family planning.
- Loneliness of being an outlier in a male domain, where biases are rampant and getting oneself heard, a constant struggle, glass-ceiling effect.
- Women scientists often have to shoulder a disproportionate burden of academic housekeeping in comparison to their male counterparts.

Measures taken by Government

- Science, Technology, and Innovation Policy 2020 target of 30 per cent of women at a post-doctoral level by 2030.
- GATI (by DST) a grading system for institutes based on the enrollment of and impetus to the careers of women in its ranks (it is based on the UK's Athena Swan Charter)
- The Athena Swan Charter is a framework which is used across the globe to support and transform gender equality within higher education (HE) and research.
- **KIRAN (Knowledge Involvement in Research Advancement through nurturing) Scheme** to encourage women Scientists
- **CURIE**: For infrastructure in women's universities

E-Shram Portal

Science & Technology

Why in the news?

- SC has directed states to register unorganized workers on the portal within 6 weeks.

About the portal

- **Aim:** To register 38 crore unorganised workers such as construction labourers, migrant workforce, street vendors, and domestic workers, among others.
- The workers will be issued an e-Shram card containing a 12 digit unique number.
- If a worker is registered on the eSHRAM portal and meets with an accident, he will be eligible for Rs 2.0 Lakh on death or permanent disability and Rs 1.0 lakh on partial disability.
- Government in States/UTs will conduct registration of unorganised workers across the country.

Xylitol

Science & Technology

Why in the news?

- Researchers at IIT Guwahati have created a fermentation process that uses ultrasound to safely generate Xylitol from sugarcane bagasse, the byproduct of crushing sugar cane.

About the research

- Xylitol, recently developed by researchers at IIT Guwahati, has reduced the fermentation time to 15 hours as against about 48 hours in conventional processes and also increased the yield of the product by about 20%.
- Previously only 8-15% of the D-xylose from which xylitol is made is converted to xylitol which translates to a higher price for the consumer.
- The research has also been published in the journal Bioresource Technology and Ultrasonics Sonochemistry.

Xylitol

- Xylitol, a sugar alcohol derived from natural products.
- It has potential antidiabetic and anti-obesogenic effects, is a mild prebiotic and protects teeth from caries.
- It is a colorless or white crystalline solid that is soluble in water.



- Xylitol is manufactured industrially by a chemical reaction in which wood-derived D-xylose, an expensive chemical, is treated with a nickel catalyst at very high temperatures and pressures which makes the process highly energy-consuming.

Significance

- Xylitol is a natural sugar substitute safe for diabetics.
- It is not an artificial sweetener but is a natural sugar alcohol sweetener found in the fibres of many fruits and vegetables, and can be extracted from various berries, oats, and mushrooms, as well as fibrous material such as corn husks and sugar cane bagasse.
- Xylitol is roughly as sweet as sucrose with only two-thirds the food energy.

Recovery of ozone layer achieves significant milestone

Science & Technology

Why in the news?

- As per NOAA (National Oceanic and Atmospheric Administration of US), the concentration of the ozone-depleting substance in mid-latitude has significantly reduced (to the level of 1980).

Ozone

- Ozone is a naturally occurring, highly reactive molecule made up of three oxygen atoms.
- It is measured using the Dobson unit.
- About 90% of the ozone in the atmosphere is concentrated between 15 and 30 kilometres above the earth's surface (stratospheric ozone).
- It is also found at ground level in lower concentrations (tropospheric ozone). Here ozone is a pollutant that is a key part of smog over cities.
- The region of the stratosphere with the highest amount of ozone is called the ozone layer.
- The stratospheric ozone layer absorbs the sun's ultraviolet rays and protects all biological systems on Earth from these harmful rays.

Ozone depleting Substance

- Chlorofluorocarbons (CFCs) and other halogenated ozone-depleting substances (ODS) are mainly responsible for man-made chemical ozone depletion.
- These are mainly used in refrigerators, air conditioners, fire extinguishers and foams.

Treaty for ODS regulations:

- Vienna Convention for the Protection of the Ozone Layer (1985);
- Montreal Protocol (regulated production and consumption of ODS, 1987);
- Kigali Amendment (phase down the production and consumption of hydrofluorocarbons (HFCs))

Artemis 1 Mission

Science & Technology

Why in the news?

- The National Aeronautics and Space Administration (NASA) Artemis 1 moon mission was postponed after the crew could not get the rocket's engines to the proper temperature range required to start the engines at lift-off.

Artemis-1 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.



- It is the first in a series of increasingly complex missions that will enable human exploration to the Moon and Mars.
- 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 (the lunar outpost around the Moon) in lunar orbit to aid exploration by robots and astronauts.
- The gateway is a critical component of NASA's sustainable lunar operations and will serve as a multi-purpose outpost orbiting the moon.

India's first Saline Water Lantern

Science & Technology

Why in news?

- Union Minister of State (Independent Charge) Science & Technology; Dr Jitendra Singh has launched India's first Saline Water Lantern which uses the sea water as the electrolyte between specially designed electrodes to power the LED lamps.

About Lantern

- It is India's 1st saline water LED lantern. It uses salty sea water as an electrolyte to power LED lamps
- Developed by: National Institute of Ocean Technology (NIOT), Chennai
- The first-of-its kind lantern named "Roshni" during a visit to SAGAR ANVESHKA, a Coastal Research Vessel, operated and used by the National Institute of Ocean Technology (NIOT), Chennai for coastal research.
- Saline Water Lantern will bring "Ease of Living" to the poor and needy, particularly the fishing community living along the 7500 Kilometres long coastal line of India.
- NIOT developed Low Temperature Thermal Desalination (LTTD) technology for conversion of sea water to potable water, which has been successfully demonstrated in Lakshadweep islands.

Spectrographic Investigation of Nebular Gas (SING) Project

Science & Technology

Why in news?

- Tension between India and China since May 2020 is worrying Indian astrophysicists involved in an ambitious project to install an India-made spectroscope aboard the developing Chinese space station, Tiangong.

SING Project

- The SING project would be the first space-collaboration involving India and China, and primarily deals with sending and positioning a spectrograph, an instrument that splits light into constituent frequencies and wavelengths, to study ultraviolet radiation.
- This will help analyse the make-up and sources of interstellar gas in the region that swept by the space station as it orbits around the earth.
- The Chinese T-shaped Tiangong space station, when complete, is expected to be around 20% as massive as the International Space Station, or about 460 tonnes on Earth.
- The space station consists of three modules, two of which have already been launched in April 2021 and July this year, respectively.
- The third is expected to be launched this October. It will be only the second such station after the International Space Station in orbit.
- **India and China** have been collaborators in the past on research projects such as the Giant Metre Wave Radio Telescope, a Pune-based observatory that's employed by astrophysicists across the world to study radiation at metre-scale resolutions to observe and analyse stars and galaxies.

The Nature Index 2022

Science & Technology

Why in news?

- The Nature Index 2022 was recently released. Survey for the index was conducted based on research articles published in chemistry, life sciences, physical sciences and earth & environment.



Major Findings

- In the index, University of Hyderabad has secured first position among Indian Universities while has been placed at 16th position among all institutions in academic sector.
- Hyderabad was ranked first with 72 research papers and a share of 19.46 in academic sector.
- Rank 23rd – Indian Institute of Technology (IIT) Hyderabad.
- Rank 26th – Indian Institute of Science Education and Research (IISER), Tirupati.
- Rank 54th -Amity University.

The Nature Index

- This index is a database of affiliations of author and relationships of institution.
- It records contributions to research articles, published across 82 high-quality natural science journals.
- These journals are selected by an independent group of researchers. This database is compiled by Nature Research. It provides real-time proxy of high-quality research output. It is updated monthly.

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Why in news?

- The 3rd Edition of Vietnam India Bilateral Army Exercise "Ex VINBAX 2022" was conducted at Chandimandir.

Ex VINBAX 2022

- The **theme of Ex VINBAX – 2022** is employment and deployment of an Engineer Company and a Medical Team as part of United Nations Contingent for Peace Keeping Operations.
- The exercise is a sequel to previously conducted bilateral exercise in Vietnam in 2019 and a major milestone in strengthening the bilateral relations between India and Vietnam.
- India and Vietnam share a Comprehensive Strategic Partnership and defence cooperation is a key pillar of this partnership.
- Vietnam is an important partner in India's Act East policy and the Indo-Pacific vision.
- The conduct of Ex VINBAX – 2022 as a field training exercise with enhanced scope from previous editions of bilateral exercise will strengthen mutual confidence, inter-operability and enable sharing of best practices between the Indian Army and Vietnam People's Army.
- The joint exercise will also provide an opportunity to the troops of both the Contingents to learn about the social and cultural heritage of each other.
- Indian Army is being represented by troops from the 105 Engineer Regiment.

AL NAJAH-IV**Defence & Security****Why in news?**

- The 4th Edition of India Oman Joint Military Exercise 'AL NAJAH-IV' between contingents of Indian Army and the Royal Army of Oman has been concluded recently.

AL- NAJAH-IV Military Exercise

- The joint military exercise aims to enhance the level of defence co-operation between Indian Army and Royal Army of Oman and will further manifest in enhancing the bilateral relations between the two nations.
- The Indian Army is represented by troops from the 18 MECHANISED INFANTRY Battalion.
- The previous edition of Ex AL NAJAH IV was organised at Muscat from 12 to 25 March 2019.
- The scope of the exercise includes professional interaction, mutual understanding of drills & procedures, establishment of joint command & control structures and elimination of terrorist threats.
- The joint exercise would focus on Counter Terrorism Operations, Regional Security Operations and Peace Keeping Operations under United Nations charter apart from organising joint physical training schedules, tactical drills, techniques and procedures.

Hellfire R9X Missile**Defence & Security****Why in news?**

- The US military used its 'secret weapon' — the Hellfire R9X missile ('Ninja missile')– to kill Al Qaeda chief Ayman al- Zawahiri on the balcony of a safe house in Kabul.

Features of the missile

- Better known in military circles as the AGM-114 R9X, the Hellfire R9X is a US-origin missile known to cause minimum collateral damage while engaging individual targets.
- It weighs about 45 kg and the missile can also be launched from helicopters, aircraft and Humvees. The range of these missiles varies from 500 metres to 11 km.
- Originally designed as an anti-tank missile in the 1980s, the Hellfire has been used by military and intelligence agencies over the last two decades to strike targets in Iraq, Afghanistan, Yemen and elsewhere.
- Hellfire means Heliborne, Laser, Fire and Forget Missile
- Al-Zawahiri, an Egyptian surgeon who had a \$25 million bounty on his head, had helped coordinate September 11, 2001, attacks that had killed nearly 3,000 people.

Why in news?

- The 12th edition of DefExpo - India's flagship exhibition on Land, Naval and Homeland Security systems - will be held in Gandhinagar, Gujarat between October 18-22, 2022.

DefExpo 2022

- DefExpo 2022 will be held in a three-venue format across an area of 01+ lakh square metres at Helipad Exhibition Centre; inaugural event and seminars at Mahatma Mandir Convention and Exhibition Centre and Live demo at Sabarmati River Front.
- DefExpo 2022 is in line with the vision of Prime Minister Shri Narendra Modi to achieve self-reliance in defence and achieve export of \$5 billion by 2025.
- India has successfully established itself as an emerging defence manufacturing hub with numerous international orders being bagged by Indian companies in recent years.
- The Indian Defence industry has been keenly anticipating DefExpo-2022 which is Asia's largest event in the defence sector.
- The Ministry of Defence has introduced numerous policy reforms in recent years such as simplifying industrial licensing process; allowing 74% Foreign Direct Investment (FDI) through automatic route.

Ex Vajra Prahar 2022**Defence & Security****Why in news?**

- The 13th Edition of the Indo-US Joint Special Forces exercise "Ex Vajra Prahar 2022" commenced at the Special Forces Training School (SFTS), Bakloh (HP).

Ex Vajra Prahar 2022

- The Vajra Prahar series of joint exercise aims to share best practices and experiences in areas such as joint mission planning and operational tactics as also to improve inter-operability between the Special Forces of both the Nations.
- This annual exercise is hosted alternatively between India and the United States. The 12th edition was conducted at Joint Base Lewis McChord, Washington (USA) in October 2021.
- During the course of next 21 days, teams of both armies would jointly train, plan and execute a series of Special Operations, Counter Terrorist Operations, Air Borne operations in simulated conventional and unconventional scenarios in mountainous terrain.
- This joint exercise is a significant step in strengthening the traditional bond of friendship between the special forces of both Nations as well as improve bilateral defence cooperation between India and the USA.

Multilateral Exercise Super Garuda Shield 2022**Defence & Security****Why in news?**

- The Singapore Armed Forces (SAF) concluded its participation in Exercise Super Garuda Shield 2022 (XSGS 22), a multilateral exercise involving assets and personnel from thirteen countries.

Super Garuda Shield 2022

- Began in 2009
- **Aim:** It is designed to strengthen interoperability, capability, trust and cooperation in support of a free and open Indo-Pacific.
- The expanded drills are seen by China as a threat. Chinese state media have accused the U.S. of building an Indo-Pacific alliance, similar to NATO, as a means to intentionally provoke conflict.
- Exercise Super Garuda Shield allowed participating armed forces to collaborate and share knowledge, enhancing the cooperation among partner nations.

Why in news?

- Udarashakti is a bilateral exercise between Indian Air Force (IAF) and Royal Malaysian Air Force (RMAF). The four-day bilateral exercises recently started in Malaysia.

Udarashakti

- In Udarashakti 2022, Indian Air Force is taking part in air exercise with Su-30 MKI and C-17 aircraft.
- On the other hand, Malaysian Air Force is taking part with Su 30 MKM aircraft.
- During the four days, various aerial combat drills will be conducted between two Air Forces.
- The first bilateral Air Force exercise that staged frontline Sukhoi-30 combat aircraft was conducted in 2018. From 2008 to 2010, the Indian Air Force Training Team was deployed in Malaysia to give training to Malaysian pilots on the SU-30SKM aircraft.

Advanced Towed Artillery Gun System (ATAGS)

Defence & Security

Why in news?

- On **Independence Day**, ATAG, an indigenously developed howitzer, became part of a 21-gun salute at the Red Fort.

ATAG

- The ATAGS is an indigenous 155 mm x 52 calibre howitzer gun developed by the Defence Research and Development Organisation (DRDO) with its Pune-based facility Armament Research and Development Establishment (ARDE) being the nodal agency.
- Howitzers is an umbrella term for a category of long-range artillery guns.
- The ATAGS project was started in 2013 by DRDO to replace older guns in service in the Indian Army with a modern 155 mm artillery gun.

Features

- The armament system of ATAGS mainly comprises barrel, breech mechanism, muzzle brake and recoil mechanism to fire 155 mm calibre ammunition held by Army with a longer range, accuracy and precision and provides greater firepower.
- The ATAGS is configured with all electric drive to ensure maintenance free and reliable operation over a longer period of time.
- It has advanced features in terms of high mobility, quick deployability, auxiliary power mode, advanced communication system, automatic command and control system with night firing capability in the direct fire mode.
- The specialised gun system is compatible with C4I (command, control, communications, computers, and intelligence) systems like the Artillery Combat Command and Control System (ACCCS) called Shakti for technical fire control, fire planning, deployment management, and operational logistics management of the Army.

Made in India F-INSAS, Nipun, LCA handed over to Indian Army

Defence & Security

Why in news?

- Defence minister Rajnath Singh handed over the much-awaited indigenously manufactured Future Infantry Soldier as a System (F-INSAS) to the Indian Army.

F-INSAS

- F-INSAS is "Future-Infantry Soldier as A System" weapon.
- This system has been developed indigenously to modernise the Indian Army units.
- This system aims to improve operational capabilities of infantry units of the Army.

- Under the F-INSAS project, the soldiers will get modern fighting equipment that are cost-effective, lightweight, needs low maintenance cost and suitable for all weather and terrain conditions.
- This system includes firepower in the form of AK-203 Assault Rifle, which is a magazine-fed, gas-operated, select-fire assault rifle of Russian origin.
- Apart from assault rifle, F-INSAS system also include ballistic helmet, goggles and bulletproof jackets.
- F-INSAS system was created in year 2005, under Infantry Vision 2020.
- The F-INSAS system includes an AK-203 assault rifle – a Russian-origin gas-operated, magazine-fed, select fire assault rifle with a range of 300 metre – as well as a ballistic helmet, ballistic goggles, a bulletproof jacket, elbow-pads, and knee pads.

NIPUN Mines

- Nipun Anti-Personnel Mines act as first line of defence to counter infiltrators and advancing enemy infantry.
- These mines have been developed by collaboration of Armament Research and Development Establishment. Indian Army will induct around 7 lakh Nipun anti-personnel mines into service.

Quantum Communication Technology

Defence & Security

Why in news?

- India is all set to join the league of global leaders with indigenous and more advanced Quantum Communication technology in order to equip its Armed Forces with high end Defence.

About QKD

- QKD is a secure communication technology that allows two parties to generate a shared secret key which can be used to encrypt and decrypt messages.
- Quantum computing takes advantage of the strange ability of subatomic particles to exist in more than one state at any time. Due to the way the tiniest of particles behave, operations can be done much more quickly and use less energy than classical computers.
- Under the aegis of Innovation for Defence Excellence (iDEX) – Defence Innovation Organisation (DIO), the QNu Labs, a Bengaluru-based Deep Tech Start-up, has broken distance barriers by innovating advanced secured communication through Quantum Key Distribution (QKD) systems.
- The project was curated by iDEX-DIO with Indian Army.

About iDEX

- It is an initiative by the government (launched in 2018) to contribute to the modernization of the Defense Industry.
- It aims to promote innovation and technology development in Defense and Aerospace by engaging with Industries, MSMEs, start-ups, individual innovators, R&D institutes & academia
- It will be funded by the Defense Innovation Organization (DIO) (under the Ministry of Defence).

Exercise Pitch Black 2022

Defence & Security

Why in news?

- Exercise Pitch Black begins in Darwin after COVID hiatus, with Germany, Japan and South Korea joining for the first time.

Exercise Pitch Black

- Exercise Pitch Black is a large-scale, multi-national training exercise for the air forces of Australia and interested partner nations.
- It's held over three weeks – from August 19 to September 8 this year – over a vast stretch of the northern part of the territory, with personnel using Darwin as their base.
- It is conducted on Royal Australian Air Force's Bradshaw Field Training Area and Delamere Air Weapons Range — one of the largest training airspaces in the world.



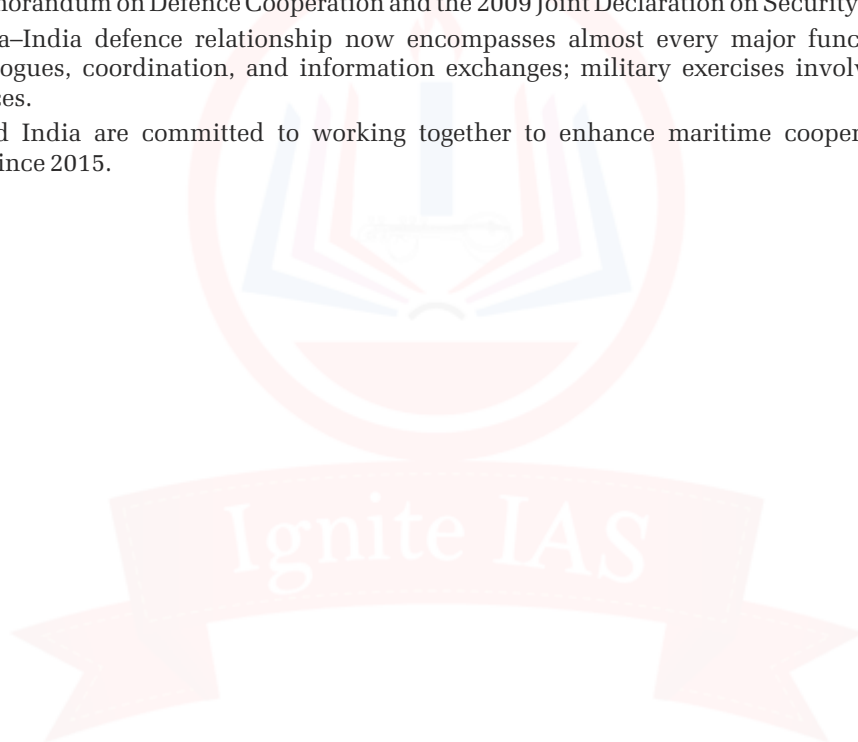
- Usually the drills are out of RAAF's Base Darwin and Base Tindal, this year Base Amberley will also be used.
- Australia is the host, and others attending include India, Germany, France, UAE, Malaysia, the US, New Zealand, Indonesia, Singapore, Japan, the Republic of Korea, the UK, the Philippines, Thailand, Canada, and the Netherlands.
- The last edition was conducted in 2018. The 2020 edition of the exercise was cancelled due to the COVID-19 pandemic.
- This year's exercise will see the participation of over 100 aircraft and 2500 military personnel from various air forces.

India Participation

- In 2018, India participated in the exercise for the first time. Around 131 aircraft were involved and more than 4,000 personnel participated in the exercise.
- This also included Canada, France, Australia, Germany, Netherlands, Indonesia, Thailand, US, Malaysia.

India- Australia

- Building on a long history of cooperation - including our shared experience in the trenches of World War I in Gallipoli and along the Western Front - Australia and India have a positive defence relationship, underpinned by the 2006 Memorandum on Defence Cooperation and the 2009 Joint Declaration on Security Cooperation.
- The Australia-India defence relationship now encompasses almost every major function of the military: strategic dialogues, coordination, and information exchanges; military exercises involving ground, air and maritime forces.
- Australia and India are committed to working together to enhance maritime cooperation and have had AUSINDEX since 2015.





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