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Why in news?

- The International Union of Geological Sciences (IUGS), one of the largest scientific organisations of UNESCO, has recognised the Mawmluh Cave, located in the East Khasi Hills district of Meghalaya, as one of the first 100 IUGS geological heritage sites.

Mawmluh caves

- With a length of 7.2kms, Mawmluh Cave is the fourth longest cave in the Indian subcontinent.
- The cave is a long maze with many openings and is decorated with stalactites, stalagmites, columns, drapes and moon milk.
- Set at an altitude of 4503 m, the cave is known for its stalagmite formations.
- Another prime feature of the cave is the pool inside the cave that is formed from five different rivers that pass through the cave.

About IUGS

- One of the biggest scientific organisations in the world, the IUGS was established in 1961 and has 121 country members, representing more than a million geoscientists.
- They work to identify significant geological locations from throughout the world whose contributions to our understanding of the Earth's past have been recognised by the geoscience community.
- Internationally significant geological sites are listed by the IUGS, including those with tectonic, sedimentological, petrological, mineralogical, hydrogeological, paleontological, geomorphological, and history of geological sciences connections.

Why in news?

- The Indian Government recently completed the Mother Tongue Survey of India (MTSI) project.
- Mother Tongue Survey Project
- According to the report, the Mother Tongue Survey of India is a project that "surveys the mother tongues, which are returned consistently across two and more Census decades".
- It also documents the linguistic features of the selected languages.
- The report states that the NIC and the National Film Development Corporation (NFDC) will be documenting and preserving the linguistic data of the surveyed mother tongues in audio-video files.
- Video-graphed speech data of Mother Tongues will also be uploaded on the NIC survey for archiving purposes.
- Linguistic Survey of India (LSI) is a regular research activity in the country since the 6th Five Year Plan.

Mother Tongue in India

- According to the 2011 linguistic census data released in 2018, more than 19,500 languages or dialects are spoken as mother tongues in India. These were grouped into 121 mother tongues after the census data underwent linguistic scrutiny, editing and rationalisation. "Mother tongue" is a designation provided by the survey's respondent. It need not be identical to the actual linguistic medium.
- 43.6 per cent of the population (52.8 crore people) declared Hindi to be their mother tongue, making the most widely spoken mother tongue in India. The second highest spoken mother tongue is Bengali. 9.7 crore people or 8 per cent of the population speak the language.

Why in news?

- The Maharashtra government is in talks with the Centre to get Chhatrapati Shivaji Maharaj's sword back from a museum in the UK.

About Shivaji IV

- Shivaji IV presented the sword (not a genuine gift as the British extracted it through coercion) to King Edward VII, then Prince of Wales, during his tour of India in 1875-76.



- Lokmanya Bal Gangadhar Tilak made the first effort to bring back the sword when he went to London.
- Shivaji Bhonsale I (1630-1680), popularly known as Chhatrapati Shivaji Maharaj, was a Maratha ruler from the Bhonsle clan.
- From the declining Adil Shahi sultanate of Bijapur, Shivaji carved out his own independent kingdom, laying the foundation of the Maratha Empire.
- At Raigad Fort in 1674, he was formally crowned Chhatrapati (Emperor) of his empire.

Janjatiya Gaurav Diwas 2022

History & Culture

Why in news?

- 15th Nov is celebrated as Janjatiya Gaurav Diwas or Tribal Pride Day to honour tribal freedom fighter, Birsa Munda.

About the Diwas

- Recently the Union Cabinet declared November 15 as '**Janjatiya Gaurav Divas**' marking the birth anniversary of the revered leader and saluting his contributions to India's freedom movement.
- Prime Minister Narendra Modi dedicated a museum in Ranchi in memory of Birsa Munda also known as Dharti Aaba.

Patan Patola Scarf

History & Culture

Why in news?

- Recently, Prime Minister of India gifted a 'Patan Patola' scarf to the Prime Minister of Italy at the G20 summit.

Patan Patola

- The ancient art of double ikat or Patola woven in pure silk dates back to the 11th century.
- The Patola fabrics bear an equal intensity of colours and design on both sides.
- This peculiar quality has its origins in an intricate and difficult technique of dyeing or knot dyeing, known as 'bandhani', on the warp and weft separately before weaving.
- One of the major practitioners of the dwindling art form is the Salvi family from North Gujarat.
- Patola is woven on primitive hand-operated harness looms made out of rosewood and bamboo strips. The loom lies on a slant. The other commonly worn Patola is the Rajkot Patola, woven on a flat loom.
- While possessing and wearing a Patola is considered a matter of pride, the fabric has largely remained inaccessible to common people because of its high price.

400th birth anniversary celebration of Lachit Barphukan

History & Culture

Why in news?

- Assam Chief Minister Himanta Biswa Sarma released the theme song of the 400th birth anniversary celebration of the legendary general of Assam Lachit Barphukan.

Lachit Barphukan

- Lachit Borphukan, born on November 24, 1622, was a commander and Bophukan (councillor) in the Ahom Kingdom, which reigned present-day Assam for over 600 years while successfully resisting the Mughal Empire.
- Borphukan is known for his leadership in the 1671 Battle of Saraighat, which prevented the Mughal forces from invading the Ahom Kingdom. He passed away a year later because of illness.

About Celebrations

- On November 18, a march-past parade will be conducted by Assam Police, Indian Army, Paramilitary Forces, Indian Navy and Air Force personnel and National Cadet Corps in each district.
- The government is also taking efforts to beautify the Lachit Barphukan's maidan in Jorhat and convert it into a tourist attraction.
- The theme song for the program, which was released recently, was composed by the famous singer Zubin Garg. This theme song pays tribute to the bravery and sacrifice of Lachit Barphukan and the importance of the celebration of Lachit Divas.
- As part of the celebrations, the Assam Government will take over 50 bighas of land from the local people on November 20. It will also provide Rs.12 crore as a mark of gratitude to people who have donated the land.



Why in news?

- Prime Minister of India inaugurated the month-long Kashi Tamil Sangamam in Varanasi, Uttar Pradesh.

Kashi Tamil Sangamam

- Kashi Tamil Sangamam celebrates many aspects of the historical and civilisational connection between India's North and South.
- The broader objective is to bring the two knowledge and cultural traditions (of the North and South) closer, create an understanding of our shared heritage and deepen the people-to-people bond between the regions.
- It is being organized by the Ministry of Education in collaboration with other ministries like Culture, Textiles, Railways, Tourism, Food Processing, Information & Broadcasting etc. and the Government of Uttar Pradesh.
- The endeavour is in sync with National Education Policy (NEP), 2020's emphasis on integrating the wealth of Indian Knowledge Systems with modern systems of knowledge.
- IIT Madras and Banaras Hindu University (BHU) are the two implementing agencies for the programme.

Significance

- King Parakrama Pandya, who ruled over the region around Madurai in the 15th century, wanted to build a temple to Lord Shiva, and he travelled to Kashi (Uttar Pradesh) to bring back a lingam.
- While returning, he stopped to rest under a tree — but when he tried to continue his journey, the cow carrying the lingam refused to move.
- Parakrama Pandya understood this to be the Lord's wish, and installed the lingam there, a place that came to be known as Sivakasi, Tamil Nadu.
- For devotees who could not visit Kashi, the Pandyas had built the Kasi Viswanathar Temple in what is today Tenkasi in southwestern Tamil Nadu, close to the state's border with Kerala.

Why in news?

- Union Minister for Tourism G Kishan Reddy inaugurated the biggest tourism festival of Manipur -Sangai festival on 21 November 2022 at Moirang Khunou in Bishnupur district of Manipur.

Manipur Sangai Festival

- Manipur Sangai Festival is a cultural extravaganza organized every year to showcase the uniqueness of Manipur.
- It also celebrates Manipur's state animal, Sangai Deer, which is found only in floating Keibul Lamjao National Park in Loktak Lake.
- The 10-day festival promotes the northeastern state's tourism sector.
- It showcases the culture and traditions of the state. It was earlier known as the Manipur Tourism Festival.
- In 2010, it was renamed as Sangai Festival.
- The main objective of this annual festival is to promote Manipur as a world class tourism destination.
- This festival showcases the tourism potential of state in the areas of arts and culture, handloom, handicraft, indigenous sports, cuisine, music, adventure sports etc.
- The theme for the event is "**Festival of Oneness**". It promotes a sense of belonging and creates pride in ownership of land among people.

Other major festivals of Manipur

- **Gang-Ngai**- Celebrated for five days in the month of December/January, Gang-Ngai is an important festival of the Kabui Nagas.
- **Lui-Ngai-Ni**- It is a collective festival of the Nagas observed on the 15th day of February every year. This is a seed sowing festival after which tribes belonging to the Naga group begin their cultivation.
- **Yaoshang**- Celebrated for five days commencing from the full moon day of Phalguna (February/March), Yaoshang is the premier festival of Manipur. The **Thabal Chongba** – a kind of Manipuri folk dance, where boys and girls hold hands together and sing and dance in a circle, is particularly associated with this festival. Yaoshang to Manipur is what Durga Puja is to Bengal, Diwali in north India and Bihu to Assam.
- **Cheiraoba**: The Manipuri New Year. It is celebrated during the month of April. Villagers climb the nearest hilltops in belief that it will enable them to rise to greater heights in their worldly life.

Franca Ma-ih Sulem Yong, winner of the UNESCO-Madanjeet Singh Prize 2022

History & Culture

Why in news?

- Franca Ma-ih Sulem Yong won the 2022 edition of the UNESCO-Madanjeet Singh Prize.

About UNESCO-Madanjeet Singh Prize

- The UNESCO-Madanjeet Singh Prize for the Promotion of Tolerance and Non-Violence is conferred every two years by UNESCO.
- The award was created based on the ideals of UNESCO's Constitution, which states that "peace if it is not to fail, must be founded on the intellectual and moral solidarity of mankind".
- It was unveiled in 1996 after the 1995 United Nations Year for Tolerance and in connection with the 125th birth anniversary of Mahatma Gandhi.
- The award was funded by a donation from Madanjeet Singh – the former Indian artist, writer and diplomat who served as a UNESCO Goodwill Ambassador.
- The award recognizes exceptional contributions of institutions and individuals involved in the promotion of tolerance and non-violence through the arts, education, culture, science and communication.
- The award includes 100,000 USD prize money. It is managed by the Social and Human Sciences Sector of UNESCO.

Franca Ma-ih Sulem Yong

- Franca Ma-ih Sulem Yong, with 7-year experience as a journalist, strived to change the perception related to mental illness.
- With training in art therapy and psychology, she founded two non-governmental organizations (NGOs) – Afrogiveness Movement and Positive Youths Africa (PYA).
- These two NGOs are peace education initiatives that aim to help traumatized survivors of interfaith and intercultural conflicts in African countries to heal using the universal language of the arts.
- They operate in nine African countries – Cameroon, Central African Republic, Chad, Congo, Mali, Niger, Nigeria, Sudan, and Togo.
- Through these NGOs, Franca Ma-ih Sulem Yong is promoting tolerance and non-violence by reintegrating survivors from opposing sides of war and conflicts into their host communities.
- She is also combating online hate speech by promoting digital citizenship education.

Gandhi Mandela Award

History & Culture

Why in news?

- The 14th Dalai Lama was recently conferred the Gandhi Mandela Award 2022 at Thekchen Choeling in Dharamshala's McleodGanj by Himachal Pradesh governor Rajendra Vishwanath Arlekar.

Gandhi Mandela Award 2022

- The 14th Dalai Lama was conferred the Gandhi Mandela Award 2022 at Thekchen Choeling in Dharamshala's McleodGanj by Himachal Pradesh governor Rajendra Vishwanath Arlekar.
- The Tibetan spiritual leader, receiving the peace prize from the New Delhi-based Gandhi Mandela Foundation.
- The award is given to personalities who have carried forward the legacies of Gandhi and Mandela by making significant contributions in the fields of Peace, Social Welfare, Culture, Environment, Education, Healthcare, Sports and Innovation.
- A government of India registered Trust, the Gandhi Mandela Foundation is a non-profit organisation, formed with the motive to promote Mahatma Gandhi's and former President of South Africa Nelson Mandela's values of non-violence.
- It has constituted an international prize, the Gandhi Mandela Award.
- The foundation instituted the award on the 150th birth anniversary of the Father of the Nation, MK Gandhi.



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Urdu writer Khalid Jawed wins 2022 JCB Prize for Literature

History & Culture

Why in news?

- Author Khalid Jawed's "The Paradise of Food", translated by Baran Farooqi from Urdu, won the fifth JCB Prize for Literature.

About JCB Prize

- A shortlist like none other in the award's history, which only included translation, also featured International Booker-winning novel "Tomb of Sand" by Geetanjali Shree (translated from the Hindi by Daisy Rockwell) and "Imaan" by Manoranjan Byapari (translated from the Bengali by Arunava Sinha).
- It was also for the first time that titles in Hindi and Nepali made it to the shortlist of the literary award.
- The shortlist also included debut books — 'Song of the Soil' by Chuden Kabimo (translated from Nepali by Ajit Baral) and "Valli" by Sheela Tomy, (translated from Malayalam by Jayasree Kalathil).
- Each of the shortlisted authors also received Rs 1 lakh, and the translators Rs 50,000.
- The award was instituted by the JCB Literat

Pratham gets Indira Gandhi Prize for works in education

History & Culture

Why in news?

- Former Vice-President Hamid Ansari presented the Indira Gandhi Prize for Peace, Disarmament and Development of 2021 to Pratham, an NGO functioning in the field of education.

About Award

- The award carries a monetary award of Rs 25 lakh along with a citation and is awarded annually by the Indira Gandhi Memorial Trust to individuals and organizations.
- The annual Status of Education Report (ASER) is biennially published by the NGO Pratham, since 2005.
- The award is in recognition of Pratham's work in ensuring quality education for children of the country, particularly during the COVID-19 pandemic.
- Pratham also used digital technology to deliver education so that the children could learn during the school closure amid the pandemic.

Indira Gandhi Peace Prize

- It has been named after former Prime Minister Indira Gandhi.
- It is conferred every year since 1986 by Indira Gandhi Memorial Trust.
- Indira Gandhi Peace Prize, also known as Indira Gandhi Prize for Peace, Disarmament and Development, is the prestigious award accorded annually by Indira Gandhi Memorial Trust to individuals or organisations in recognition of
- creative efforts toward promoting international peace development and a new international economic order
- ensuring that scientific discoveries are used for the larger good of humanity, and enlarging the scope of freedom.

Pratham

- **Mission-** "Every Child in School and Learning well". By increasing the literacy levels of India's poor which account for about one third of the world's poor, Pratham aims to improve India's economic and social equality.
- **Pratham is known for-**
 - Annual Status of Education Report (or ASER), is a household-based survey that collects information on children's schooling status and basic learning outcomes in almost every rural district in the country.
 - Pratham started by holding balwadis (pre-education classes) for children in Mumbai's slums. Volunteers were recruited to teach in spaces within communities, including temples, offices, and even people's homes. The Pratham pre-school classes multiplied and were replicated in other locations.



Niti Aayog report on Carbon Capture & Storage

Environment

- NITI Aayog has recently released a study report on 'Carbon Capture, Utilisation, and Storage (CCUS) Policy Framework and its Deployment Mechanism in India'.

About the report

- The report explores the importance of Carbon Capture, Utilisation, and Storage as an emission reduction strategy to achieve deep decarbonization from the hard-to-abate sectors.
- The report outlines broad level policy interventions needed across various sectors for its application.
- As, India has updated its NDC targets for achieving 50% of its total installed capacity from non-fossil-based energy sources, 45% reduction in emission intensity by 2030 and taking steps towards achieving Net Zero by 2070, the role of CCUS becomes important as reduction strategy to achieve decarbonization from the hard-to-abate sectors.
- It estimates that about 750 mtpa of carbon capture by 2050 can create employment opportunities of about 8-10 million on full time equivalent (FTE) basis in a phased manner.
- The report indicates that CCUS can provide a wide variety of opportunities to convert the captured CO₂ to different value-added products like green urea, food and beverage for application, building materials (concrete and aggregates), chemicals (methanol and ethanol), polymers (including bio-plastics) and enhanced oil recovery (EOR) with wide market opportunities in India, thus contributing substantially to a circular economy.

New Tiger Reserve

Environment

Why in news?

- UP's Ranipur tiger reserve becomes 53rd tiger reserve of India

Ranipur Tiger Reserve

- Apart from Ranipur, Uttar Pradesh has three tiger reserves, Dudhwa, Pilibhit, and Amangarh.
- Uttar Pradesh government approved the development of the first tiger reserve in the Bundelkhand region of the state on 28th September 2022.
- The UP government also approved the notification of the Ranipur Wildlife Protection Act 1973.
- Ranipur Tiger Reserve is covered by northern tropical dry deciduous forests and is home to mammals like megafauna tiger, leopard, bear, spotted deer, sambhar, and chinkara among others.
- According to the state government, the establishment of the Tiger Reserve in Ranipur will lead to the opening up of eco-tourism in the area and create immense employment opportunities.

Panamaram Heronry

Environment

Why in news?

- Due to the intervention of the Kerala State Biodiversity Board (KSBB) and the Panamaram grama panchayat, Panamaram heronry is set to get a fresh lease of life.

Panamaram heronry

- It is one of the largest mixed species heronry in Kerala and important site for breeding 9 species of water birds,
- which includes species like black headed-ibis, purple heron, large egret, median egret, little egret, pond heron, night heron, and little cormorant.
- The site is also the only location in State where the cattle egret breeds.
- The heronry, formed on a sandbank on the Panamaram river (Wayanad district, Kerala) is covered with vegetation, predominantly bamboo groves.
- Panamaram River is a tributary of the Kabani River along with Mananthavady, Babali, Noolpuzha and Nugu Rivers.
- Destruction of bamboo groves after a massive blossoming of the plant and illegal sand-mining near the islet.



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Heronry

- It is the breeding grounds of herons.
- Herons are long-legged, long-necked, freshwater and coastal birds some of which are referred to as egrets or bitterns rather than herons.
- Herons, by evolutionary adaptation, have long beaks.
- IUCN: Least Concern

South Asia Drought Monitoring System (SADMS)

Environment

Why in news?

- A new satellite-based drought-monitoring tool will be able to indicate the presence of drought and its level of severity, providing authorities with the maximum possible lead time to put mitigation strategies into place in India and across South Asia.

SADMS

- In India, the South Asia Drought Monitoring System (SADMS) was developed by the International Water Management Institute (IWMI) and the Indian Council of Agricultural Research (ICAR), the country's premier agricultural research institution.
- It has been tested in India, Pakistan, Bangladesh, Sri Lanka, Nepal, Maldives, Afghanistan and Bhutan.
- The system will not just monitor the drought conditions but also incorporate this information of real-time weather updates and open-access satellite data, and provide extension workers as well as agriculture and water resources authorities with all the information needed to forecast, monitor and manage drought on a weekly basis.
- IWMI has been testing SADMS by validating it at the district level.
- The input data comes into the platform from the India Meteorological Department (IMD) and the Indian Institute of Tropical Meteorology (IITM).
- This includes soil moisture, precipitation, temperature, wind speed and available cloud ratio. The scientists will also factor in historical droughts and their conditions.

Benefits to farmers

- It will help the farmers to decide which crops to grow.
- During the drought seasons, they can choose to grow drought-tolerant crops like millet over water-intensive crops like rice.
- The platform is already in operation in the state of Telangana.
- From 2017, ICAR used SADMS to implement real-time contingency measures.
- It helped farmers in three districts of Andhra Pradesh and Maharashtra to obtain drought-tolerant seeds, develop supplementary irrigation and apply potassium nitrate (which helps seedlings cope better with dry conditions).

Species of Honeybee

Environment

Why in news?

- Recently, a new species of endemic honeybee named *Apis karinjodian* has been discovered in the Western Ghats after a gap of more than 200 years.

About Honey Bee

- The last honeybee described from India was *Apis indica* in 1798 by Fabricius.
- The new find has increased the species of honeybees in the world to 11.
- Common Name: Indian black honeybee.
- *Apis karinjodian* has evolved from *Apis cerana* morphotypes that got acclimatised to the hot and humid environment of the Western Ghats.
- Indian black honeybees are able to produce a thicker honey which allows for increased honey production.
- Till date, only a single species, *Apis cerana* was noted across the plains of central and southern India and Sri Lanka as a 'fairly uniform population' in the Indian subcontinent.
- The research has given a new direction to apiculture in the country by showing the presence of three species of cavity nesting honey bees, namely *Apis indica*, *Apis cerana*, and *Apis karinjodian*.



Why in news?

- The first-ever recording of the snow leopard from the Baltal-Zojila region has renewed the hope for the elusive predator in the higher altitudes of Jammu and Kashmir and Ladakh.

Snow Leopard Population Assessment in India (SPAI)

- It was launched on International Snow Leopard Day on 23rd October 2019.
- It has evolved from international effort to develop a global protocol for PAWS under the aegis of GSELP.
- Objective – To help the snow leopard double its population.
- Under SPAI, a two-step process is undertaken to estimate the snow leopard population.
- First step– An occupation-based assessment of snow leopard distribution, which involves identifying the area where the study will be conducted based on conducting preliminary surveys and using interview or sign- based methods.
- Second step– Population sampling for regional density estimation by carrying out a thorough review of already sampled areas.
- Online tools including a data-sharing portal, training app for identifying individual leopards through photographs and threat mapping tool would be utilized.

About the Snow leopard

- The snow leopard (*Panthera uncia*) is a felidae (a family of mammals in the order Carnivora) in the genus *Panthera*.
- It is native to the mountain ranges of Central and South Asia, ranging from eastern Afghanistan, the Himalayas and the Tibetan Plateau to southern Siberia, Mongolia and western China.
- It is listed as Vulnerable on the IUCN Red List.
- It is a good indicator species (whose presence, absence or abundance reflects a specific environmental condition) as it quickly reacts to habitat disturbances.
- Global Snow Leopard and Ecosystem Protection Program (GSLEP)
- The GSLEP is a world first joint initiative that aims to conserve the endangered snow leopard within the broader context of also conserving valuable high mountain ecosystems.
- It unites all 12 range country governments, nongovernmental and inter-governmental organisations, local communities, and the private sector around this aim.

India Joins Mangrove Alliance for Climate (MAC) at COP27**Environment****Why in news?**

- India is among the first five countries to join the MAC, at the 27th session of the Conference of the Parties (COP27) at Sharm el-Sheikh in Egypt. The others are Australia, Japan, Spain, and Sri Lanka.

About MAC

- The Mangrove Alliance for Climate (MAC) is an intergovernmental alliance that seeks to expand and hasten the progress towards the conservation and restoration of mangrove ecosystems. Its members include the UAE, Indonesia, India, Sri Lanka, Australia, Japan, and Spain.
- The alliance will raise global awareness about the role of mangroves as a nature-based climate change solution. It will ensure the rehabilitation of mangrove forests at the global level.
- The move is in line with India's Nationally Determined Contributions (NDCs) to create an additional carbon sink of 2.5- 3 billion tonnes of carbon dioxide (CO₂) equivalent, through additional forest and tree cover by 2030.

About REDD+

- Reducing Emissions from Deforestation and forest Degradation (REDD+) is a mechanism developed by Parties to the United Nations Framework Convention on Climate Change (UNFCCC) in 2005.
- Most of the key REDD+ decisions were completed by 2013, with the final pieces of the rulebook finished in 2015.
- The "Plus" in REDD+, lays out the various ways in which countries have defined the three activities: conservation, the sustainable management of forests and enhancement of forest carbon stock.
- It aims to achieve climate change mitigation by incentivizing forest conservation.

Why in news?

- The Union Ministry of Environment, Forest and Climate Change (MoEFCC) has granted an in-principle clearance for the diversion of 130 sq km of forest in Great Nicobar Island for the mega project.

About Mega Project

- The Mega Project in Great Nicobar Island includes a transshipment port, an airport, a power plant and a greenfield township.
- The project is being implemented by Andaman and Nicobar Islands Integrated Development Corporation under a vision plan conceived by the NITI Aayog.

Concerns

- Firstly, the area of the project is nearly 15% of the thickly forested Great Nicobar Island which is spread over 900 sq km. This is one of the largest single such forest diversions in recent times.
- It is nearly a quarter of all the forest land being diverted in the past three years across the country and 65% of the 203 sq km of forest land diverted in the three-year period 2015-18.
- Secondly, the ministry's own estimates suggest that 8.5 lakh trees will have to be cut in Great Nicobar for this project. This is doubly significant because these are primary evergreen tropical forests with high biological diversity and also high endemism.
- Thirdly, the project area is home to rare flora and fauna. These include the leatherback sea turtles, Nicobar megapode (a flightless bird endemic to the Nicobar islands), Nicobar Macaque and saltwater crocodiles.

Great Nicobar

- Great Nicobar is the southernmost island of the Nicobar Islands Archipelago.
- It has the Great Nicobar Biosphere Reserve.
- The Mongoloid Shompen Tribe, about 200 in number, live in the forests of the biosphere reserve, particularly along the rivers and streams.
-

Why in news?

- The International Drought Resilience Alliance (IDRA) was launched on November 7 during the 27th Conference of Parties (COP27) to the United Nations Framework Convention on Climate Change (UNFCCC).

About IDRA

- Spain and Senegal jointly launched the IDRA to promote cooperation to increase preparedness against future droughts.
- The Alliance has 30 countries and 20 organisations. It seeks to create a shift in how the world responds to the growing drought risks by moving away from emergency responses to creating a long-term resilience.
- The IDRA was first announced by Spain at the 77th session of the UNGA in September this year.
- This grouping will make drought resilience a priority in the national development.
- It will also provide platform for sharing drought-related technology and expertise.
- It will be collaborating with other international platforms to achieve the universal coverage of early warning systems and regional initiatives to achieve maximum benefits.

Why in news?

- The Manipur Forest Authority to celebrate the 7th edition of the Amur Falcon Festival in Tamenglong district, Imphal.
- The objective of the Amur Falcon Festival is to spread awareness about the protection and conservation of the Amur Falcon.

Amur Falcon Festival

- The day-long festival is generally celebrated in the first or second week of November to strengthen human-

nature relationship and acknowledge the importance of this small raptor in the lives of people in the region.

- It was organised in 2015. The festival is not just a place to celebrate but also a place where people from different backgrounds come together and share their ideas.

Amur Falcon

- The Amur falcon (*Falco amurensis*) is the world's longest travelling small raptors of the falcon family.
- Amur falcons migrate to their wintering grounds in South Africa, usually arriving in large numbers during October in Nagaland and Manipur besides other places in the northeast India undertaking a yearly journey of about 20,000 km.
- They leave the region in November after having enough food for their non-stop flight to Africa where they spend their winters.
- The **radio-tagging programme** of Amur falcons started in Manipur in 2018 as part of an initiative to conserve wildlife and also to study the route of these long-distance migratory birds and the environmental patterns along the route as India is a signatory to an international agreement on conservation of migratory birds of prey.

Methane Alert and Response System (MARS)

Environment

Why in news?

- Recently the United Nations (UN) has decided to set up a satellite-based monitoring system "MARS: Methane Alert and Response System" for tracking methane emissions and alerting governments and corporations to respond.

About MARS

- The Methane Alert and Response System (MARS) is a satellite-based system that enables governments to detect methane emissions and take measures to address them.
- This data-to-action platform is part of the global endeavour to tackle climate change by curbing greenhouse emissions.
- It was set up as part of the United Nations Environment Programme's International Methane Emissions Observatory (IMEO) strategy to gain policy-relevant data required for mitigating emissions.
- This will be the first publicly available global system connecting methane detection with the notification processes transparently.
- It will use state-of-the-art satellite data to detect and identify notable greenhouse emission events and notify concerned stakeholders. This data will also be used for supporting and tracking the progress of the mitigation efforts.

Objectives

- MARS will integrate data from a large number of existing and future satellites that have the ability to detect methane emission events anywhere in the world, and send out notifications to the relevant stakeholders to act on it.
- MARS will track the large point emission sources, mainly in the fossil fuel industry, but with time, would be able to detect emissions from coal, waste, livestock and rice fields as well.

About Methane

- Methane is a colourless and odourless gas that occurs abundantly in nature and as a product of certain human activities.
- Methane is the simplest member of the paraffin series of hydrocarbons and is among the most potent of the greenhouse gases.

Concerns Regarding Methane

- Methane is the second-most common of the six major greenhouse gases, but is far more dangerous than carbon dioxide in its potential to cause global warming.
- Accounting for about 17% of the current global greenhouse gas emissions, methane is blamed for having caused at least 25%- 30% of temperature rise since the pre-industrial times.
- It accounts for a small portion of human-induced greenhouse gas emissions compared to carbon dioxide. But it is thought to be 80 times more efficient than carbon dioxide at trapping atmospheric heat in the 20 years following its release.

Why in news?

- A group of countries including India has opposed the carbon border taxes policy at the COP27 in Sharm El Sheikh, saying it could "result in market distortion".

About Carbon Border Tax

- A carbon border adjustment tax is a duty on imports based on the amount of carbon emissions resulting from the production of the product in question. As a price on carbon, it discourages emissions. As a trade-related measure, it affects production and exports.
- The proposal is part of the European Commission's European Green Deal that endeavours to make Europe the first climate-neutral continent by 2050.
- A carbon border tax is arguably an improvement from a national carbon tax.
- A national carbon tax is a fee that a government imposes on any company within the country that burns fossil fuels.

Issues

- The BASIC (Brazil, South Africa, India and China) countries' grouping had opposed the EU's proposal in a joint-statement terming it "discriminatory" and against the principles of equity and 'Common but Differentiated Responsibilities and Respective Capabilities' (CBDR-RC).
- These principles acknowledge that richer countries have a responsibility of providing financial and technological assistance to developing and vulnerable countries to fight climate change.
- The EU's notion of having a uniform standard all over the world for the environment is not borne out by the global consensus contained in the Article 12 of the Rio Declaration which says that the standards applicable to developed countries cannot be applied to developing countries.
- The greenhouse content of these imports would also have to be adjusted in the greenhouse gas inventories of the importing countries which essentially implies that GHG inventories would have to be reckoned not on the production basis but at the point of consumption basis.

Why in news?

- Recently, a research study observed and listed a large variety of animal visitors/predators attracted by the fruit and flowers of Muli Bamboo (*Melocanna baccifera*).

About

- Muli is the tropical evergreen species of bamboo.
- It is the largest fruit-producing bamboo and is native to the northeast India-Myanmar region.
- It accounts for 90% of the bamboo forests found in the north-eastern state.
- It can be recognised easily by diffused clump habit.
- The plant is also grown as an ornamental.
- 'Mautam' is a strange ecological phenomenon associated with Muli Bamboo that occurs once every 48 years.

Mautam

- 'Mautam' means 'Bamboo death' in Mizo (mau means bamboo and tam means death).
- During 'Mautam', the cyclical, mass bamboo flowering and large fruit production occurs.
- This attracts animal visitors/predators including pollen predators (honey bees), fruit predators (millipedes, slugs and snails, fruit borers, monkeys, rats, porcupines, wild boars and palm civets), seedling predators (rabbits, deer), and insect/pest predators (ants, mantis).
- Black rats greatly relish the fleshy, berry-like fruit of the Muli Bamboo and during this period, the black rats also multiply rapidly, a phenomenon dubbed as 'Rat Flood.'
- Once the fruits are gone, they start quickly eating-up standing crops.
- This leads to famines claiming thousands of human lives.
- Due to the occurrence of 'Mautam', Muli bamboo is locally known as 'Mautak'.

Indian Initiatives

- Bamboo Clusters
- National Bamboo Mission (NBM)
- **Removal of Bamboo from 'Tree' Category**- The Indian Forest Act 1927 was amended in 2017 to remove bamboo for the category of trees.
- As a result, anyone can undertake cultivation and business in bamboo and its products without the need of a felling and transit permission.

First biodiversity heritage site in Tamil Nadu

Environment

Why in news?

- The Tamil Nadu Government has issued a notification declaring Arittapatti in Melur block, Madurai district, a biodiversity heritage site.

About BHS

- Biodiversity Heritage Sites are rich Biodiversity Areas and are important components of local ecosystems which are being conserved and managed by the society.
- BHS are declared as per provision under Section 37(1) of Biological Diversity Act, 2002.
- The State Government may, from time to time in consultation with the local bodies, notify the areas of biodiversity importance as biodiversity heritage sites under this Act.
- As per provision under Section 37(1) of 'Biological Diversity Act, 2002', The State Government may, from time to time in consultation with the local bodies, notify in the Official Gazette, areas of biodiversity importance as under this Act.
- Creation of BHS may not put any restriction on the prevailing practices and usages of the local communities, other than those voluntarily decided by them. The purpose is to enhance the quality of life of the local communities through conservation measures.
- Nallur Tamarind Grove in Bengaluru, Karnataka was the first Biodiversity Heritage Site of India, declared in 2007.

About Arittapatti

- Arittapatti village, rich in ecological and historical significance, houses around 250 species of birds including three important raptors -birds of prey, namely the Laggar Falcon, the Shaheen Falcon and Bonelli's Eagle.
- It is also home to wildlife such as the Indian Pangolin, Slender Loris and pythons.
- The biodiversity-rich area is surrounded by a chain of seven hillocks or inselbergs that serve as a watershed, charging 72 lakes, 200 natural springs and three check dams.
- The Anaikondan tank, built during the reign of Pandiyan kings in the 16th century is one among them.
- Several megalithic structures, rock-cut temples, Tamil Brahmi inscriptions and Jain beds add to the historical significance of the region.

Lophopetalum tanahgambut

Environment

Why in news?

- A new species of giant tree named Lophopetalum tanahgambut was discovered in Indonesia.

About Lophopetalum tanahgambut

- The new species belongs to the genus Lophopetalum in cosmopolitan family Celastraceae.
- Lophopetalum genus has almost 20 recognized species native to India, Bangladesh, Indonesia, Cambodia, Laos, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Thailand, Vietnam, Australia, and the Andaman Islands.
- Within the Celastraceae family, Lophopetaleae has 3 paleotropical genera that is known to have winged seeds that lack an aril. These are Kokoonia, Lophopetalum and Peripterygia. The largest among them is Lophopetalum, having 19 species that are identified by their petals' inner surface.
- The new species, Lophopetalum tanahgambut, is found only in peat swamp forests on the Sumatra Island of Indonesia. These forests are known for their unique, nutrient-poor, carbon-rich and wet conditions that require species to have unique adaptive capabilities to survive.

- The new species is found to grow up to 40 meters tall. It has a diameter-at-breast-height (dbh) of up to 1.05 meters.
- Its knee roots system is wide, reaching up to 15 meters around the tree and raising up to 1.5 meters high from the ground surface.
- The bark is smooth, cracked longitudinally, creating a flaky, light to dull grey or milky white color outer surface. The inner bark is pinkish-orange to pale-reddish brown or sapwood cream.
- The species is found in a relatively undisturbed lowland peat swamp forest, which is being preserved by the voluntary commitment of concession.
- The new species does not have opposite or subopposite leaves, which usually occurs in species belonging to Lophopetalum.

Leith's Softshell Turtle

Environment

Why in news?

- India's proposal for transferring Leith's Softshell Turtle from Appendix II to Appendix I of the Convention on International Trade in Endangered Species of wild fauna and flora (CITES) to provide greater protection has been adopted by the Conference of Parties (CoP) to CITES in its 19th Meeting at Panama.

About Leith's Softshell Turtle

- Leith's softshell turtle is a large freshwater soft-shelled turtle that is endemic to peninsular India.
- It has been subject to intense exploitation over the past 30 years for poaching and illegal consumption within India. It has been illegally traded to foreign countries for meat and its calipee.
- This species' population has fallen by 90 per cent over the past 3 decades and is now very difficult to find.
- It is classified as "critically endangered" in the IUCN Red List.
- The turtle has been listed on Schedule IV of the Wild Life (Protection) Act, 1972, which gives protection from hunting and trading. However, this protection failed to save the species from poaching and illegal trade. Seizures of thousands of specimens are reported every year.
- Significance
- It will help prevent commercial trade of this critically endangered species.
- It will ensure that the international trade of captive-bred specimens only takes place in registered facilities and that higher and more appropriate penalties are given for illegal trade.

Water Adaptation and Resilience action plan

Environment

Why in news?

- World leaders at the 27th Conference of Parties (COP27) to the United Nations Framework Convention on Climate Change launched a water adaptation and resilience action plan.

About the plan

- The initiative will have **an Africa-first focus**, giving hope to drought-ravaged populations, **especially in the Horn of Africa**.
- The action plan, **Action on Water Adaptation or Resilience (AWARe)**, aims to foster political efforts in **establishing pan-African water hubs**.
- AWARe will **address water security as part of climate change adaptation and will focus on three priorities**:
- Decrease water losses worldwide and improve water supply.
- Propose and support implementing policies for cooperative water-related adaptation action and cooperation and
- Interlinkages between water and climate action.
- The multisectoral initiative was a result of **collaboration between** various stakeholders, including the **African Union (AU), Water and Climate Coalition Leaders, the World Meteorological Organization (WMO) and the African Ministers' Council on Water (AMCOW)**, among others.
- One of the **critical goals of the initiative is to ensure there is 50 per cent less damage from floods and droughts by 2030**, even as reality paints a grim picture of the current situation.
- Early warning systems do not cover a third of the world's population, doubling the risk of the number of individuals exposed to floods and droughts due to climate change, according to the Intergovernmental Panel on Climate Change (IPCC).
- **The action plan has six comprehensive data-driven solutions it recommends regional blocks or heads of**

governments to put in place to enable a quick transition from awareness to action.

- The solutions described include a set of global water information services like accurate hydrological data to help understand the scarcity and availability of water per region.
- It also has a **water and climate stock** take that integrates water and climate-related databases to inform decision-making.
- A cryosphere information mechanism that details data on frozen water parts of the earth, like waters that surround Antarctica and the Arctic and a new financing rationale focusing on areas of priority is also a part of it
- The plan calls for concerted efforts to stop pollution, manage wastewater and restore or preserve water towers and catchment areas, including glaciers and snow that are melting away, impacting sources of streams and rivers.

National Centre of Excellence for Green Port & Shipping (NCoEGPS)

why in news:

Environment

- The Union Minister of **Ports, Shipping & Waterways** (MoPSW) launched the India's first Centre of Excellence for Green Port & Shipping to provide Green solutions to transform Ports & Shipping sector in India.

About NCoEGPS

- **The National Centre of Excellence for Green Port & Shipping (NCoEGPS):**
- It aims to develop a regulatory framework and alternate technology adoption road map for Green Shipping to foster **carbon neutrality and circular economy (CE)** in shipping sector in India.
- NCoEGPS will act as a **technological arm** of MoPSW for providing the needed support on Policy, Research and Cooperation on Green Shipping areas for Ports, DG Shipping, Corporate Social Lendings and other institutions.
- The Center will be a host of several technological arms to support the port and shipping sector and will provide solutions to a variety of problems being faced in the industry through scientific research.
- It will also carry out valuable education, applied research and technology transfer in maritime transportation at the **local, regional, national and International levels**.
- It will focus on the following areas:
- **Energy Management** - Energy management tools, waste energy recovery systems
- **Emission Management**- Alternate, clean Energy/Fuel, emission control & monitoring.
- **Sustainable Maritime Operations** – novel technologies and approaches

Project Implementation:

- The **Energy and Resources Institute (TERI)** is the knowledge and implementation partner for this project.
- The **Deendayal Port Authority Kandla, Paradip Port Authority, Paradip, V.O Chidambaranar Port Authority, Thoothukudi & Cochin Shipyard Limited, Kochi** has all extended their support to the ministry to set up the centre.
- The ports have also aimed to reduce **Carbon emissions per ton of cargo** handled by 30% by 2030.
- India will also be implementing **IMO energy efficiency requirements** for existing ships and carbon intensity requirements on all its vessels whether coastal or international in order to help achieve **IMO GHG reduction targets**.
- The NCoEGPS will be working under the framework of the **Sagarmala programme** of the MoPSW.

CITES COP19 downgrades status of Southern White Rhino

why in news:

Environment

- In a major hurdle to Africa's rhino conservation efforts, CITES COP19 has recently accepted the proposal to downgrade the status of southern white rhinos from Appendix I to Appendix II.

Downgrade Status

- A proposal by Namibia and Botswana to transfer the southern white rhinos from Appendix I to Appendix II allows the trade of live animals for conservation purposes and hunting trophies only.
- Animals in Appendix II may not necessarily be on the brink of extinction but the trade of such species is regulated to protect their existence.
- This amendment is restricted to the downgrading of live animals only for in situ conservation purposes.

- This decision does not resume the international trade in rhino horn, which was proposed by Eswatini (formerly known as Swaziland).
- However, the downgrading of the classification exposes these vulnerable species to the threats posed by smuggling channels in countries where there are rampant activities of illegal poaching.
- It allows white rhinos to be relocated over long distances from one country to another.

Southern White Rhino

- The southern white rhino is one of the two subspecies of white rhinos, with the other being the northern white rhino.
- It is one of the largest and heaviest animals in the world. It is among the most widespread and common subspecies of white rhinos.
- It is listed as Near Threatened by the IUCN Red List. Its population has dwindled by 24 per cent from 2015 -21.
- Currently, 98.5 per cent of the southern white rhino population is found in South Africa, Namibia, Zimbabwe, Kenya and Uganda.
- Namibia currently hosts some 1,237 southern white rhinos. As many as 57 white rhinos have been poached between the years 2013 and 2020 in this country.

Yak as a 'food animal'

Environment

- The Food Safety and Standard Authority of India (FSSAI) has approved the Himalayan Yak as a 'food animal'.

About Himalayan Yak:

- **The Yak is a member of the Bovini tribe**, which also includes bison, buffaloes, and cattle. It can withstand temperatures as low as -40° C.
- They have long hair that hangs off their sides like a curtain, sometimes touching the ground, allowing them to live at high altitudes.
- **Himalayans place a high value on yaks.** Tibetan Buddhism's founder, Guru Rinpoche, is said to have domesticated the first yaks.
- They are also known as the **lifeline of pastoral nomads** in the Indian Himalayan region's high altitudes.
- Yaks are traditionally raised through a primitive, unorganised, and difficult transhumance system.
- **They are endemic to the Tibetan Plateau** and the surrounding high-altitude regions.
- **Yaks are most at ease above 14,000 feet.** When foraging, they can reach elevations of 20,000 feet and rarely descend below 12,000 feet.
- Arunachal Pradesh, Sikkim, Uttarakhand, Himachal Pradesh, and Jammu and Kashmir are the Indian states that raise yaks.

India's population:

- The countrywide population trend shows that the yak population is rapidly declining. According to a 2019 census, **India has approximately 58,000 yaks, a 25% decrease from the previous livestock census in 2012.**
- This sharp decline could be attributed to lower bovid remuneration, which discourages younger generations from continuing with nomadic yak rearing.
- **Yak milk and meat are primarily sold to local consumers** because they are not part of the conventional dairy and meat industries.
- **Significance:**
- The yak serves a multifaceted socio-cultural-economic role for pastoral nomads who rear it primarily for nutritional and livelihood security due to a lack of other agricultural activity in the higher reaches of the Himalayan region where animals other than the yak struggle to survive.
- **Threats:**
- **Climate Change:** The rising temperature of the environment at high altitudes causes heat stress in yak during the warmer months of the year. This, in turn, affects the animal's physiological response rhythms.
- **Inbreeding:** Because wars and conflicts have caused borders to close, yaks outside borders are thought to be suffering from inbreeding due to a lack of new yak germplasm from the original yak area.

Protection Status of Wild Yak (Bos mutus):



- **IUCN Red List Status: Vulnerable**
- IUCN considers the wild species of yak under *Bos mutus*, while the domestic form is considered under *Bos grunniens*.
- **CITES: Appendix I**
- **Indian Wildlife (Protection) Act 1972: Schedule I**

E-waste (management) Rules 2022

Environment

- The government recently notified E-waste (management) rules 2022 that will come into force from **1 April 2023**.

About Major Highlights of E-waste (management) rules 2022

- These rules apply to every manufacturer, producer refurbisher, dismantler and recycler involved in manufacture, sale, transfer, purchase, refurbishing, dismantling, recycling and processing of e-waste or electrical and electronic equipment listed in Schedule I, including their components, consumables, parts and spares which make the product operational but it does not apply to
 - waste batteries as covered under the Battery Waste Management Rules, 2022;
 - packaging plastics as covered under the Plastic Waste Management Rules, 2016;
 - micro enterprise as defined in the Micro, Small and Medium Enterprises Development Act, 2006; and
 - radio-active wastes as covered under the provisions of the Atomic Energy Act, 1962.

Specifics

- Entities must register on the portal as manufacturer; producer; refurbisher; or recycler.
- All manufacturer must collect e-waste generated during the manufacture of any electrical and electronic equipment and ensure its recycling or disposal; file annual and quarterly returns in the laid down form on the portal on or before end of the month succeeding the quarter or year, as the case may be, to which the return relates.
- The producer of electrical and electronic equipment must create awareness through media, publications, advertisements, posters or by any other means of communication; and file annual and quarterly returns in the laid down form on the portal on or before the end of the month succeeding the quarter or year, as the case may be, to which the return relates. They must obtain and implement extended producer responsibility targets as per Schedule-III and Schedule-IV through the portal.
- All refurbisher must collect e-waste generated during the process of refurbishing and hand over the waste to registered recycler and upload information on the portal; ensure that the refurbished equipment shall be as per Compulsory Registration Scheme of the Ministry of Electronics and Information Technology and Standards of Bureau of Indian Standards framed for this purpose; file annual and quarterly returns in the laid down form on the portal on or before the end of the month succeeding the quarter or year, as the case may be, to which the return relates.
- Bulk consumers of electrical and electronic equipment listed in Schedule I shall ensure that e-waste generated by them shall be handed over only to the registered producer, refurbisher or recycler.
- All recycler must ensure the following:
 - facility and recycling processes are in accordance with the standards or guidelines laid down by the Central Pollution Control Board in this regard from time to time;
 - fractions or material not recycled in its facility is sent to the respective registered recyclers;
 - residue generated during recycling process is disposed of in an authorised treatment storage disposal facility;
 - maintain record of e-waste collected, dismantled, recycled and sent to registered recycler on the portal and make available all records for verification or audit as and when required;
 - file annual and quarterly returns in the laid down form on the portal on or before the end of the month succeeding the quarter or year, as the case may be, to which the return relates.
- Every manufacturer, producer, refurbisher and recycler may store the e-waste for a period not exceeding one hundred and eighty days and shall maintain a record of sale, transfer and storage of e-wastes and make these records available for inspection and the storage of the e-waste.
- The Central Pollution Control Board must generate extended producer responsibility certificate through the portal in favour of a registered recycler.
-

- The United Nations Environment Programme (UNEP) has published the 'Adaptation Gap Report, 2022'.

About the report

- According to the **United Nations Environment Programme's (UNEP) Adaptation Gap Report, 2022**, global efforts in adaptation planning, financing, and implementation are insufficient to prepare vulnerable communities around the world to adapt to the rising risks of climate change's impacts.
- The report discovered some progress on adaptation plans from national governments, but they are not financially supported.
- A third of the 197 parties to the **UN Framework Convention on Climate Change (UNFCCC)** have included quantified and time-bound adaptation targets. And 90% of them have thought about gender and underserved groups.
- International adaptation finance flows are 5-10 times lower than needed, and the gap is widening. Finance for adaptation increased by 4% in 2020, reaching USD 29 billion.
- This is when developing countries' annual adaptation needs are estimated to be between USD 160 and USD 340 billion by 2030, and between USD 315 and USD 565 billion by 2050

Report's Recommendations

- **An Ecological Approach:**
 - The report emphasised that the best way to achieve co-benefits was to link mitigation and adaptation actions in terms of planning, financing, and implementation.
 - Nature-based solutions are one example of this.
- **Climate Adaptation:**
 - Beginning with COP27, countries must back up the strong words in the **Glasgow Climate Pact** with strong action to increase adaptation investments and outcomes.
 - **Other Approaches: Four critical steps** must be taken to close the adaptation gap:
 - **Increase Adaptation Financing:** Developed countries must provide a clear roadmap for their promise to double adaptation finance to USD 40 billion, as agreed at COP 26 in Glasgow.
 - **A New Business Model:** Because there is a mismatch between what governments propose and what financiers consider investable, the world urgently requires a new business model for converting adaptation priorities into investable projects.
 - **Data Implementation is required:** The availability of climate risk data and information, which is a problem for many developing countries' adaptation planning.
 - **Modified Warning Systems:** The development and implementation of early warning systems for extreme weather events and slow-onset changes like sea level rise.

Black Corals

Environment

- Recently, some researchers have discovered five new species of Black Corals living as deep as 2,500 feet (762 metres) below the surface in the Great Barrier Reef and Coral Sea off the coast of Australia.

Black Corals

- Black corals (Anthozoa: Antipatharia) can be found growing both in shallow waters and down to depths of over 26,000 feet (8,000 metres), and some individual corals can live for over 4,000 years.
- However, the taxonomy of black corals is poorly known compared to many other anthozoan groups
- Many of these corals are branched and look like feathers, fans or bushes, while others are straight like a whip.
- Unlike their colourful, shallow-water cousins that rely on the sun and photosynthesis for energy, black corals are filter feeders and eat tiny zooplankton that are abundant in deep waters.
- Similarly, to shallow-water corals that build colourful reefs full of fish, black corals act as important habitats where fish and invertebrates feed and hide from predators in what is otherwise a mostly barren sea floor. For example, a single black coral colony researchers collected in 2005 off the coast of California, United States, was home to 2,554 individual invertebrates.

Artificial photosynthetic system to capture solar energy

Environment

- Researchers from IISER-Thiruvananthapuram and IIT-Indore have jointly developed an artificial light-harvesting system that will help capture solar energy.

About the system

- Scientists have a novel artificial light-capturing system that imitates the process of photosynthesis to effectively capture light to conserve power.
- This technology addresses various challenges faced while replicating the complex process of photosynthesis as well as the problems associated with light absorbers and transmitters.
- The new artificial photosynthetic system makes use of clusters of silver with a nanometer dimension, which is a hundred thousand times smaller than the width of human hair.
- These silver nanoclusters have complicated and exotic photophysical properties.
- The researchers were able to stabilize them with bulky ligands and entrap the entire ensemble inside another larger molecule called cyclodextrin.
- This is the first time that an atom-precise nanoclusters were used for this application.
- It provides 93 per cent effective energy transfer because of the presence of opposite charges on the surface and the matched electronic energy distribution.
- The harvested energy can generate currents having higher yields than individual components.

Global Offshore Wind Alliance (GOWA)

Environment

- Nine new countries have joined GOWA, an international alliance at the United Nations-Conference of Parties (UN-COP27) climate summit, pledging to a rapid ramp up of offshore wind power, in order to tackle the climate and energy security crises.

About GOWA

- It was **initiated in September 2022 by the International Renewable Energy Agency (IRENA)**, Denmark and the Global Wind Energy Council (GWEC).
- **The countries which joined GOWA during COP27 include** Belgium, Colombia, Germany, Ireland, Japan, the Netherlands, Norway, the United Kingdom, and the United States of America.
- Offshore wind energy is the clean and renewable energy obtained by taking advantage of the force of the wind that is produced on the high seas, where it reaches a higher and more constant speed than on land due to the absence of barriers.
- Electricity produced by offshore wind turbines travels back to land through a series of cable systems that are buried in the sea floor.
- According to forecasts by IRENA and the International Energy Agency (IEA), offshore wind capacity will need to "exceed 2000 GW in 2050, from just over 57 GW today", to limit the rise in global temperatures to 1.5 degree Celsius above pre-industrial era.
- This is why a new multi-stakeholder **alliance has been created whose ambition is to create a global driving force for the uptake of offshore wind**, through political mobilisation and the creation of a global community of practice.
- **The aim of GOWA is to contribute to achieving a total global offshore wind capacity of a minimum of 380 GW by 2030**, with 35 GW on average each year across the 2020s and a minimum of 70 GW each year from 2030, culminating in 2,000 GW by 2050.
- The alliance is supported by a number of organizations which are actively promoting the offshore wind industry in their different regions.

Ban use of Aceclofenac on Cattle to Save Vultures

Environment

- Indian Veterinary Research Institute (IVRI) has demanded a ban on using aceclofenac in cattle after a new study showed that the drug metabolises into diclofenac in water buffaloes — as it does in cows.

Major findings

- Aceclofenac gets rapidly converted to diclofenac after being injected into the water buffaloes.
- Aceclofenac in water buffaloes poses the same threat to vultures as it is a pro-drug of diclofenac.
- The drug caused accidental poisoning in raptors after they fed on carcasses of cattle injected with it.

About Diclofenac

- Diclofenac — an anti-inflammatory drug — was banned for veterinary use by the Government of India in 2006.
- It was found to be the main cause of a dramatic decline (99 per cent) of the vulture population across Asia.
- The drug caused accidental poisoning in raptors after they fed on carcasses of cattle injected with it.

Vulture Action Plan

- It advocates the prevention of misuse of veterinary non-steroidal anti-inflammatory drugs (NSAIDs) by ensuring their sale only on prescription.
- It also recommends that veterinary treatment should be given only by qualified veterinarians which would prevent the overuse of NSAIDs in treating livestock as the toxicity of most of the drugs is dose-dependent.
- It promotes the scientific manner of disposal of livestock carcasses so that vultures do not get exposed to the carcasses of animals that died during treatment.
- **Vulture Action Plan 2020-2025** also mentions Aceclofenac as 'toxic', asking the Drugs Controller General of India (DGCI) to ban its veterinary use — along with other drugs like nimesulide and ketoprofen.

Ground Water Resource Assessment Report 2022

Environment

- An assessment report on groundwater by the Central ground water board and States/UTs was released recently.

About the report

- India is the largest user of Groundwater (GW) (accounting for 1/4th of total withdrawal)
- 87% of GW is used for Irrigation
- Status: GW extraction has declined and the number of over-exploited units (extraction > recharge) has decreased.
- Currently, 67% of GW units are safe (extraction < 70% of recharge), 14% Overexploited and 4% at the Critical
- Extraction is very high in Haryana, Punjab, Rajasthan etc.
- The World Bank predicts that by 2032, around 60 per cent of aquifers in the country will be in a critical state.
- A substantial amount of the water flowing in rivers comes from the seepage of groundwater into the streambed. Depletion of groundwater levels may reduce water flow in such streams.
- Groundwater depletion interrupts the 'natural' water cycle putting disproportionately more water into the sea.

The International Day for Biosphere Reserves

Environment

- November 3 will be the first 'The International Day for Biosphere Reserves', to be celebrated beginning 2022.

Biosphere Reserves

- Biosphere Reserve (BR) is an international designation by UNESCO for representative parts of natural and cultural landscapes extending over large area of terrestrial or coastal/marine ecosystems or a combination thereof.
- They are sites for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity.
- Biosphere reserves are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located.

World Network of Biosphere Reserves

- The World Network of Biosphere Reserves (WNBR) was formed in 1971, as a backbone for biodiversity conservation, ecosystem restoration, and living in harmony with nature.
- The World Network of Biosphere Reserves of the MAB Programme consists of a dynamic and interactive network of sites of excellence.
- The World Network of Biosphere Reserves promotes North-South and South-South collaboration and represents a unique tool for international co-operation through sharing knowledge, exchanging experiences, building capacity and promoting best practices.
- There are now 738 properties in 134 countries, including 12 in India, four in Sri Lanka, and three in the Maldives.
- Spain has the maximum **53 biosphere reserves**.

Why in news?

- The Ministry of Electronics and IT (MeitY) has notified amendments to the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 (IT Rules, 2021).

Recent Amendments

- The new rules pave the way for the establishment of one or more Grievance Appellate Committees (GACs) within 3 months.
- These committees will enable users of social media platforms like Facebook and Twitter to get recourse to settle complaints without depending on the judiciary.
- The committee will have three members. One of them will be a government officer and the other two will be independent representatives.

Social Media Obligations

- SMIs are mandated to ensure that their users comply with the relevant rules of the social platform. Earlier, the rules only mandated SMIs to inform their users of the "rules and regulation, privacy policy and user agreement".
- The SMIs are required to make "reasonable" efforts to prevent prohibited content from being hosted in their platforms. They will be responsible for policing and moderating the content on their platform. This rule has been met with scepticism due to the subjectivity of the content's nature and magnitude of information.
- SMIs are required to remove information or communication links that belong to 6 prohibited categories of content within 72 hours after the complaint is raised. This will help stop the content from becoming viral and spreading across the world.
- The SMIs are required to take reasonable measures to increase accessibility to their services to make them more inclusive. This is to strengthen inclusivity of the SMI ecosystem, making it accessible to persons with disabilities and those with diverse linguistic backgrounds. The new IT rules require the platforms to make available the "rules and regulations, privacy policy and user agreement" in all languages listed in the 8th schedule of the Indian constitution.

Grievance Appellate Committees (GAC)

- The committee is styled as a three-member council out of which one member will be a government officer (holding the post ex officio) while the other two members will be independent representatives.
- Users can file a complaint against the order of the grievance officer within 30 days.
- Importantly, the GAC is required to adopt an online dispute resolution mechanism which will make it more accessible to the users.
- It is unclear whether this is a compulsory tier of appeal or not, that is will the user have to approach the grievance appellate committee before approaching the court.
- IT Rules, 2021 do not provide any explicit power to the GAC to enforce its orders.
- Lastly, if users can approach both the courts and the GAC parallelly, it could lead to conflicting decisions often undermining the impartiality and merit of one institution or the other.

Significance

- First, there was a need to ensure that the interests and constitutional rights of netizens are not being contravened by big tech platforms,
- second, to strengthen the grievance redressal framework in the Rules, and
- Third, that compliance with these should not impact early stage Indian start-ups.
- The first category involved placing additional obligations on the SMIs to ensure better protection of user interests while the second category involved the institution of an appellate mechanism for grievance redressal.

Why in news?

- The Union government has said that it was considering ways to facilitate non-resident Indians (NRI) to cast their votes remotely while ensuring the integrity of the electoral process.

Remote Voting

- Remote voting is a method of casting vote, which may take place in person somewhere other than an assigned polling station or at another time, or votes may be sent by post or cast by an appointed proxy.
- The Chief Election Commissioner has proposed to include the 'remote voting facility' in the upcoming 2024 Lok Sabha elections.
- The project is being developed by the IIT-Madras using blockchain technology.

Significance

- Allowing NRIs to vote from abroad may see expatriates emerge as a decisive force in the country's electoral politics.
- NRI voters could be empowered better by amending the law.
- Purpose is to see that persons living outside India and migrant labourers are still part of the entire electoral process and every facility shall be extended which will also ensure the confidentiality of the election

Electronically Transmitted Postal Ballot System (ETPBS)

- The ETPBS method allowed for greater turnout among service voters in the 2019 Lok Sabha election.
- With increasing mobility of citizens across countries for reasons related to work, the postal ballot method has been recognised by the International Institute for Democracy and Electoral Assistance (an intergovernmental organization that works to support democratic processes and institutions) as a means to
- allow overseas voters to exercise their right, subject to certain conditions normally related to the time spent abroad or the work carried out abroad.
- A postal ballot mechanism that allows for proper authentication of the ballot at designated consular/embassy offices and an effective postal system should ease this process for NRIs, but rules must be clearly framed for eligibility on the basis of time spent away from the country.

New Mandatory Safety Tests for Electric Vehicles

Polity & Governance

Why in news?

- The Ministry of Heavy Industries has recently announced a list of safety tests that will be mandatory for electric vehicles (EV) manufacturers from April 2023 to receive subsidies under various EV promotion schemes.

List of safety tests-

- Safety test is **applicable on vehicles** produced under the production linked incentive (PLI) scheme for automobiles along with those sold under the Faster Adoption and Manufacturing of Electric Vehicles or Fame scheme.
- The new tests will also be **applicable on batteries produced under the PLI** for advanced chemistry cells (ACC).
- **As per the Ministry, the new tests would ensure quality at three levels**, battery pack, battery management system and cell level.
- **To safeguard human safety, certain tests which are done internationally will be made mandatory from 1st April 2023 for claiming incentives/payments under the PLI schemes** for automobile and auto components.
- **As per the notification, there would be six new tests for cells**, including altitude simulation & temperature cycling.
- **Under temperature cycling test, the reaction of the lithium ion cell is observed** after the chamber temperature is raised and is kept at the high temperature.
- **Altitude simulation**, on the other hand is a test to **observe that the batteries do not explode** or catch fire when stored at a specified absolute pressure and a temperature.
- **There are five new tests in total** at the battery pack level and 11 new tests for the battery management system.
- These new tests **also including dropping or a free fall of battery packs to observe that the lithium ion batteries do not explode or catch fire** under a range of possible abuses as per international standard -IEC-62133-2'.

FAME scheme-

- The FAME(Faster Adoption and Manufacture of (Hybrid and) Electric Vehicles) was launched by the Ministry of Heavy Industries and Public Enterprises in 2015 to incentivize the production and promotion of eco-friendly vehicles including electric vehicles and hybrid vehicles.
- Two phases of the scheme
 - Phase I: started in 2015 and was completed on March 31st, 2019.
 - Phase II: started from April 1st, 2019, will be completed in March, 2022.



- The scheme provides the incentive in the form of subsidies to manufacturers of electric vehicles and infrastructure providers of electric vehicles.
- It is a part of the National Electric Mobility Plan
- Encouraging electric vehicles by providing subsidies is the main thrust of the scheme.
- The vehicles such as two wheelers, three wheelers, electric and hybrid cars and electric buses obtained the subsidy benefit of the scheme. It also covers electric and Hybrid technologies like Mild Hybrid, Strong Hybrid, Plug in Hybrid & Battery Electric Vehicles
- **Implementing agency:** Department of Heavy Industry, Ministry of Heavy Industries & Public Enterprises.

Suicide Prevention Policy

Polity & Governance

Why in news?

- The Ministry of Health and Family Welfare has recently announced a National Suicide Prevention Strategy, the first of its kind in the country.

Key highlights of the policy-

- The **strategy broadly seeks to establish effective surveillance mechanisms** for suicide within the next 3 years
- It also seeks to **establish psychiatric outpatient departments that will provide suicide prevention services through the District Mental Health Programme** in all districts within the next five years.
- It aims to integrate a mental well-being curriculum in all educational institutions within the next eight years.
- It envisages developing guidelines for responsible media reporting of suicides, and restricting access to means of suicide.
- The stress is on developing community resilience and societal support for suicide prevention.
- While the **strategy is in line with the WHO's South East-Asia Region Strategy for suicide prevention**, it says it will remain true to India's cultural and social milieu.
- The strategy should now be passed on to the States for them to develop locally relevant action plans; and then cascade to the district, primary health and community levels.

Child Welfare Police Officers (CWPO)

Polity & Governance

Why in news?

- The Ministry of Home Affairs has recently asked the States/Union Territories to appoint a Child Welfare Police Officer (CWPO) in every police station to exclusively deal with children, either as victims or perpetrators.

About CWPO

- According to the Juvenile Justice (Care and Protection of Children) Act, 2015, there should be at least one officer, not below the rank of an Assistant Sub-Inspector, as CWPO in every station.
- National Commission for Protection of Child Rights had requested that a Special Juvenile Police Unit in each district and city, which is headed by an officer not below the rank of a Deputy Superintendent of Police, be established.
- The unit would comprise CWPOs and two social workers having experience of working in the field of child welfare, of whom one shall be a woman, to co-ordinate all functions of police in relation to children.
- The contact particulars of the CWPOs should be displayed in all police stations for the public to contact.

POCSO Act forces Adivasis in the Nilgiris into conflict with law

Polity & Governance

Why in news?

- The POCSO Act brings tribals in the Nilgiris into conflict with the law, as youth under the age of 18 in relationships within or outside marriage are subject to the Act's stringent provisions.

About POSCO Act

- The Union Ministry of Women and Child Development led the introduction of the POCSO Act in 2012.
- The Act was designed to protect children from sexual assault, sexual harassment and pornography offences, as well as to provide for the establishment of Special Courts for the trial of such offences.



- The Act was amended in 2019 for enhancing the punishments for specific offences in order to deter abusers and ensure a dignified childhood.

Features

- The POCSO Act establishes a gender-neutral tone for the legal framework available to child sexual abuse victims by defining a child as "any person" under the age of 18.
- Any person (except children) in charge of an institution who fails to report the commission of a sexual offence relating to a subordinate is liable to be punished.
- As per Section 155(2) CrPC, a police officer cannot investigate a non-cognizable offence without the order of a Magistrate.
- **Section 23** of POCSO relates to the offence of disclosure of the identity of the victim of the sexual offence.
- The Act prohibits disclosure of the victim's identity in any form of media, except when permitted by the special courts established under the act.
- Any institution housing children or coming in regular contact is required to conduct a periodic police verification and background check of every employee.
- Such an institution must impart regular training to sensitise its employees on child safety and protection.
- The institution has to adopt a child protection policy based on the principle of zero tolerance for violence against children.

Challenges

- According to a recent survey, one in every two children is a victim of sexual abuse in India.
- Furthermore, in the vast majority of cases, the perpetrators are known to the victim, causing the victim to be hesitant to approach authorities for redress.
- Incidents of child abuse have also risen exponentially since the Covid-19 pandemic, with the emergence of new forms of cybercrime.
- The general level of awareness or knowledge on the part of minor girls and boys of the POCSO Act remains severely inadequate in the country.
- Child marriage is common among certain tribal groups in the country, resulting in the criminalisation of 17- 18 years old youths due to a lack of knowledge of the POCSO Act.

Law Commission Constituted

Polity & Governance

Why in news?

- The central government appointed chairperson and members of the Law Commission over two and a half years after it was constituted.
- Retired Karnataka High Court Chief Justice Rituraj Awasthi appointed as the chairperson of the commission.

About 22nd Law Commission

- The Commission headed by Justice Awasthi is the 22nd Law Commission of India. The tenure of the 21st Law Commission, which was headed by former Supreme Court judge Justice B S Chauhan, came to an end on August 31, 2018.
- The 22nd Commission has been constituted two and a half years after it was approved by the Union Cabinet on February 19, 2020, just before the outbreak of the Covid-19 pandemic.
- A petition had been moved in the Supreme Court subsequently against the delay in constituting the 22nd Commission.
- An official release at the time of Cabinet clearance had said the Commission would have a tenure of three years from the date of publication of the Order of Constitution in the Official Gazette.
- The Commission shall, among other things, "identify laws which are no longer needed or relevant and can be immediately repealed; examine the existing laws in the light of Directive Principles of State Policy and suggest ways of improvement and reform and also suggest such legislations as might be necessary to implement the Directive Principles and to attain the objectives set out in the Preamble of the Constitution"; and "revise the Central Acts of general importance so as to simplify them and remove anomalies, ambiguities and inequities".

Law Commission of India

- The Law Ministry describes the Law Commission of India as a non-statutory body that is constituted by a notification of the Government of India, with definite terms of reference to carry out research in the field of law.
- The Commission makes recommendations to the Government (in the form of Reports) as per its terms of reference.
- The Law Commission was first constituted in 1955, and has so far submitted 277 reports.
- According to the Law Ministry's website, the "Law Commission of India provides excellent thought provoking and vital review of the laws in India".

Centre issues E-waste Management Rules

Polity & Governance

Why in news?

- The government has notified E-waste (management) rules 2022, which will come into force from 1 April next year and apply to every manufacturer, producer refurbisher, dismantler and recycler of e-waste.

Key provisions of the Rules:

- **Restricted the use of hazardous substances** in manufacturing electrical and electronic equipment that adversely impacts the human health and the environment.
- **Applicable to** All electrical devices and radiotherapy equipment, nuclear medicine equipment and accessories, Magnetic Resonance Imaging (MRI), electric toys, air conditioners, microwaves, phones, washing machine among others.
- **Fixed Targets:** Producers of electronic goods have to ensure at least 60% of their electronic waste is collected and recycled by 2023 with targets to increase them to 70% and 80% in 2024 and 2025, respectively. Companies will report these on an online portal.
- **Extended Producer Responsibility Certificates:** This will allow the offsetting of e-waste responsibility to a third party. 'Environmental compensation' to be provided by the companies that don't meet their target.
- **Role of State Governments:** Earmark industrial space for e-waste dismantling and recycling facilities, undertaking industrial skill development and establishing measures for protecting the health and safety of workers engaged in the dismantling and recycling facilities for e-waste.
- **Role of manufacturers:**
 - Make the end product recyclable
 - Collect e-waste generated during the manufacture of any electrical and electronic equipment and ensure its recycling or disposal;
 - File annual and quarterly returns in the laid down form on the portal on or before end of the month succeeding the quarter or year, as the case may be, to which the return relates.
- **Role of Central Pollution Control Board:**
 - Generate extended producer responsibility certificate through the portal in favour of a registered recycler.
 - Conduct random sampling of electrical and electronic equipment placed on the market to monitor and verify the compliance of reduction of hazardous substances provisions.
 - Entities must register on the portal as manufacturer; producer; refurbisher; or recycler.
- All recycler must ensure the following:
 - Facility and recycling processes are in accordance with the standards laid down by the Central Pollution Control Board in this regard from time to time;
 - Fractions or material not recycled in its facility is sent to the respective registered recyclers;
 - Residue generated during recycling process is disposed of in an authorised treatment storage disposal facility;
 - Maintain record of e-waste collected, dismantled, recycled and sent to registered recycler on the portal and make available all records for verification or audit as and when required;
 - File annual and quarterly returns in the laid down form on the portal on or before the end of the month succeeding the quarter or year, as the case may be, to which the return relates.
- **Period of Storage:** Every manufacturer, producer, refurbisher and recycler may store the e-waste for a period not exceeding one hundred and eighty days and shall maintain a record of sale, transfer and storage of e-wastes and make these records available for inspection and the storage of the e-waste.

Indian Scenario:

- India has become the **third largest producer of e-waste after China and the United States**, producing over 3.23 million metric tonnes of e-waste per year.
- Only 22.7 per cent** of the e-waste generated in 2019-20 in India was **collected, dismantled, and recycled or disposed off**.
 - More than 95 per cent** of this waste is **handled by the informal sector**.
 - This e-waste is comprised of 21 types of electrical and electronic equipment (EEE) notified Under the E-Waste (Management) Rules, 2016.
- Government & industry sectors generate more than 70% of e-waste, while households contribute around 15%.

Centre unveils Norms to Curb Fake Reviews on E-commerce Sites

Polity & Governance

Why in news?

- The Central government recently unveiled the new standard - Indian Standard (IS) 19000:2022 on "Online Consumer Reviews" and ratings, which has been prepared by the Bureau of Indian Standards (BIS).

Key highlights of the framework

- The framework is titled Indian Standard (IS) 19000:2022 'Online Consumer Reviews — Principles and Requirements for their Collection, Moderation and Publication.
- The standards will be applicable to every online platform which publishes consumer reviews.**
- The standard will **initially be voluntary for compliance** by all e-commerce platform. BIS will also develop a Conformity Assessment Scheme for the standard to assess compliance.
- The guiding principles of the standard are integrity, accuracy, privacy, security, transparency, accessibility and responsiveness.**
- The standard prescribes **specific responsibilities for the review author and the review administrator.**
- For review author, these include confirming acceptance of terms and conditions, providing contact information and for review administrator, these include safeguarding personal information and training of staff.
- Once made mandatory, if required, the violation of the standards by any entity may be considered as an unfair trade practice** or violation of consumer rights and a consumer may submit such grievances to the National Consumer Helpline, Consumer Commissions or the CCPA.
- The standard provides for **responsibilities of organization including developing a code of practice**, and necessary stipulations for terms and conditions like accessibility, criteria, and ensuring content does not contain financial information etc.
- The standard also **provides for methods for verification of review author through email address**, identification by telephone call or SMS, confirming registration by clicking on a link, using captcha system etc. to check traceability and genuineness of the review author.
- With respect to moderation, the standard provides for both automated and manual moderation** and provides checks for analyzing the review content.
- As regards to publication, the standard includes considerations for the review administrator at the time of publication process and after the publication process. **The accuracy of the review, default display and weightage of ratings are defined in the publication process.**
- The standard is expected to benefit all stakeholders in the e-commerce ecosystem i.e., consumers, e-commerce platforms, sellers etc.
- Taking cognizance of the impact of fake and deceptive reviews and protection of consumer interest in e-commerce, the Department of Consumer Affairs constituted a committee to develop framework on checking fake and deceptive reviews in e-commerce on 10th June, 2022.

Two Finger Test

Polity & Governance

Why in news?

- The Supreme Court** recently stated that those who perform the **"two-finger test"** on alleged rape victims will be held accountable for their actions.

About the test

- A medical practitioner will perform the two-finger test on the vagina to determine whether the women are habitual to sexual intercourse.

- The **practice is unscientific** and **provides no conclusive information**. Furthermore, such "information" has no bearing on a rape allegation.
- A woman who has been sexually assaulted is subjected to a medical examination in order to determine her health and medical needs, as well as to collect evidence.
- According to a **World Health Organization (WHO)** handbook on dealing with sexual assault victims, "**virginity (or 'two-finger') testing has no scientific validity.**"

Observation of the Supreme Court:

- A Supreme Court bench stated in 2004 that "whether a woman is 'habituated to sexual intercourse' or 'habitual to sexual intercourse' is irrelevant for determining whether the ingredients of **Section 375 (rape) of the IPC are present in a particular case.**"
- The court stated that it is **patriarchal and sexist** to suggest that a woman cannot be trusted when she claims she was raped simply because she is sexually active.
- The Supreme Court ruled in May 2013 that **the two-finger test violates a woman's right to privacy** and ordered the government to provide better medical procedures for confirming the sexual assault.
- Invoking the **International Covenant on Economic, Social, and Cultural Rights of 1966** and the **United Nations Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power of 1985**, the Supreme Court stated that **rape survivors have the right to legal recourse** that does not re-traumatize them or violate their physical or mental integrity and dignity.
- **The Madras High Court ordered the state to ban the two-finger test in April 2022.**

Government's Guidelines

- After the **2013 Justice Verma Committee report** on amendments to criminal law for a faster trial, and enhanced punishment in sexual assault cases, the Union Health Ministry brought out detailed guidelines for the medical examination of victims of sexual assault in early 2014.
- According to the guidelines '**two-finger test**', **must not be conducted for establishing rape/sexual violence.**
- The guidelines state that a **rape victim's consent** (or her guardian's, if she is minor/mentally disabled) is necessary for any medical examination. Even if consent is not provided, the victim cannot be denied medical treatment.
- However, these are guidelines and are not legally binding.

Gram Nyayalayas

Polity & Governance

Why in news?

- The Supreme Court recently asked all high courts to respond to a PIL seeking a direction to the Centre and states to take measures to set up 'Gram Nyayalayas'.

About Gram Nyayalayas

- GN came by Gram Nyayalayas Act 2008 on the recommendation of the 114th Report of the Law Commission.
- Establishment of GNs at the Panchayat level to try criminal, and civil claims and disputes.
- GNs will be headed by 'Nyayadhikari' (appointed by the state government in consultation with the high court).
- It shall be guided by the principle of natural justice (and not bound by rules of evidence provided in the Indian Evidence Act, 1872)
- The seat of the Gram Nyayalaya will be located at the headquarters of the intermediate Panchayat; they will go to villages, work there and dispose of the cases.
- Gram Nyayalayas have both civil and criminal jurisdiction over the offences.
- They can try criminal offences specified in the First Schedule and civil suits specified in Second Schedule to the Act.
- The Central as well as the State Governments have been given the power to amend the First Schedule and the Second Schedule of the Act.
- The pecuniary jurisdiction of the Nyayalayas is fixed by the respective High Courts.

Gram Nyayalayas Challenges

- Lack of necessary infrastructure, such as courthouses, offices, and similar tools.
- At the sub-district level, there is a lack of accessibility to key resources such labour force, notaries, & stamp merchants.
- Inadequate centralised financial support.



- In some circumstances, state governments are hesitant to enforce the law governing Gram Nyayalayas' purview.
- The number of persons willing to turn to Gram Nyayalayas for justice has decreased since institutions at the Taluk level that provide legal services were established.

25th National Conference on e-Governance (NCeG)

Polity & Governance

Why in news?

- The 25th National Conference on e-Governance will be organized on November 26 and 27 this year.

About NCeG

- National Conference on e-Governance (NCeG) will be held in Katra – a city in the union territory of Jammu and Kashmir.
- It will be jointly organized by the Department of Administrative Reforms and Public Grievances (DARPG) and the Union Ministry of Electronics and Information Technology (MeitY) in collaboration with the Jammu and Kashmir Government.
- The theme for this year's NCeG is "**Bringing Citizens, Industry and Government Closer**".
- The conference will be inaugurated on the occasion of Constitution Day (November 26), commemorates the adoption of the Indian Constitution.
- During the conference, National Awards for e-Governance (NAeG) will be conferred under five categories of the NAeG Scheme to 18 e-governance initiatives at the central, state and district levels, academic and research institutes and public sector undertakings (PSUs).
- This year's NCeG will centre around topics that will shape digital governance in the future. It will focus on technologies that will enhance government services and make India a digitally empowered society and knowledge economy.
- The conference would provide the opportunity for civil servants and industrial experts to demonstrate successful interventions using e-governance in improving the delivery of public services.

FSSAI releases new Draft for GM Food Regulations

Polity & Governance

Why in news?

- The Food Safety and Standards Authority of India (FSSAI) has released a new draft of Genetically Modified (GM) Food regulations, which proposes front-of-the pack labelling for packaged food products that contain 1 per cent or more of GM ingredients.

New Regulations

- The draft regulations propose front-of-the-pack labeling of packaged food products that contain 1 per cent or more of GM ingredients.
- It is applicable for genetically modified organisms (GMOs) used in food items having 1 per cent or more of GM ingredients produced from modified DNA and GMO-derived ingredients, additives or processing aids.
- No one will be allowed to manufacture, pack, store, sell, market, distribute or import any food items produced from GMOs, except those that have received prior approval from the FSSAI.
- Manufacturers and importers of genetically modified food products and ingredients are required to receive approval from the food regulator.
- If the GMOs are used as food or source material for the production of food, clearance is required from the Genetic Engineering Appraisal Committee (GEAC) – the central government authority responsible for monitoring the environmental risks posed by the GMOs.
- If the genetically modified organism is used as seeds or for cultivation, the applicant is required to submit an application to the GEAC to comply with the Environment Ministry's 1989 rules.
- Food products having individual 1 per cent or more GM ingredients must be labeled as "contains genetically modified organisms".

Why in News?

- The Bill to amend the RBD Act, 1969 was recently proposed by the Ministry of Home Affairs (MHA).
- The Bill is likely to be tabled in the upcoming winter session of the parliament.

Proposed Amendments

- It has been proposed to make birth certificates a mandatory document for almost every sphere of life — admission in educational institutions, inclusion in the voter list, appointment in Central and State government jobs, issue of driving licence and passport.
- It shall be mandatory for hospitals and medical institutions to provide a copy of all death certificates, stating the cause of death, to the local registrar apart from the relative of the deceased.
- According to the Civil Registration System (CRS) report, the registration level of births for the country increased to 92.7% in 2019 from 82.0% in 2010 and that of registered deaths increased from 66.9% in 2010 to 92.0% in 2019.
- CRS is an online system for registration of births and deaths under the operational control of the RGI.

Need for these amendments

- The draft amendments would enable the Registrar General of India (RGI) under the Ministry of Home Affairs (MHA) to "maintain a database of registered birth and deaths at the national level".
- The birth and death database at the national level that will be available with the RGI may be used to update the Population Register, the Electoral Register, and the Aadhar, ration card, passport and driving licence databases.
- If the amendments are implemented, the Centre could use the data to update the National Population Register (NPR) that was first prepared in 2010 and revised through door-to-door enumeration in 2015.
- The NPR already has a database of 119 crore residents and under the Citizenship Rules, 2003, it is the first step towards the creation of a National Register of Citizens (NRC).

RBD act, 1969

- Registration of Births and Deaths in India is mandatory with the enactment of RBD, Act 1969 and is done as per the place of occurrence of the event.
- Under the RBD Act, it is the responsibility of the States to register births and deaths.
- State governments have set up facilities for registering births and deaths and keeping records.
- A Chief Registrar appointed in every State is the executive authority for implementation of the Act

Rule of Law Index 2022**Polity & Governance****Why in news?**

- The 2022 World Justice Project (WJP) Rule of Law Index, released recently indicates that the 'rule of law' has declined globally for the fifth year in a row.

Findings of the report

- India has been ranked 77 (out of 140 countries)
- Topped by Denmark
- Authoritarian trends that predate the pandemic continue to erode the rule of law
- Checks on executive power are weakening and respect for human rights is falling
- Rule of law is a key underpinning of democracy, which is faltering in many countries around the world
- The rule of law is the political philosophy that all citizens and institutions within a country, state, or community are accountable to the same laws, including lawmakers and leaders.
- **The World Justice Project (WJP)** is an independent, multidisciplinary organization working to create knowledge, build awareness, and stimulate action to advance the rule of law worldwide.

Why in news?

- Recently, the Union Education Minister released the Unified District Information System for Education (UDISE) Plus 2021-22 report on school education.

About the report

- A total of 94.95 lakh students entered pre-primary classes in 2021-2022, registering a drop of 10% as compared to the previous year when 1.06 crore children enrolled in these classes.
- However, in 2020-2021, there was already a decline of 21% enrolment in pre-primary classes as compared to 1.35 crore the year before as the pandemic and lockdown measures resulted in school closures and classrooms moving online.
- Enrolment in primary classes (classes 1 to 5) also saw a drop for the first time—falling from 12.20 lakh in 2020-2021 to 12.18 lakh in 2021-2022.
- However, the total number of students from primary to higher secondary increased by 19 lakhs to 25.57 crores.
- Total number of schools in 2021-22 stood at 14.89 lakhs compared to 15.09 lakhs in 2020-21.
- The decline was mainly due to closure of private and other management schools and grouping/clustering of schools by various states.
- Computer facilities were available in 44.75% of schools, while Internet access available only in 33.9% of schools.

Gross Enrolment Ratio (GER)

- It compares the enrolment in a specific level of education to the population of the corresponding age group.
- The GER for the primary section has improved from 101.3% in 2018-2019 to 104.8% in 2021-2022.
- For secondary classes, it has risen to 79.6% in 2021-22, from 76.9% in 2018-19 and for higher secondary level, it has increased from 50.14% to 57.6%.

UDISE+ Report

- It is a comprehensive study that provides information on enrollment and dropout rates of school students, number of teachers in schools, information on other infrastructural facilities like toilets, buildings and electricity.
- It was launched in 2018-2019 to speed up data entry, reduce errors, improve data quality and ease its verification.
- It is an application to collect the school details about factors related to a school and its resources.
- It is an updated and improved version of UDISE, which was initiated in 2012-13 by the Ministry of Education.

Why in news?

- WTW's Global Gender Wealth Equity Report 2022 was released recently.

About the findings of the report

- According to the report, when women retire from work, will have just 74 per cent of wealth accumulated by men.
- This is mainly because of the pay gaps and delays in promotion.
- India has the worst gender wealth gap in the Asia-Pacific.

Reasons for this gender gap

- India's gender pay gap is higher than the global average. It is prevalent especially in professional and technical roles.
- Leadership roles for women are limited. Only 3 per cent of women in workforce hold senior-level positions.
- Women assume childcare responsibilities at a young age. This adds to the financial burdens that cannot be borne alone.
- Long-term financial decisions generally rests in the hands of men
- Financial literacy of working women is low in India.
- On average, Asia-Pacific has one of the lowest global wealth gaps. Women in this region amass just around three-quarters (76 per cent) of men's wealth levels, just 2 points above the global average.
- In the Asia-Pacific region, gender wealth gap across 12 markets is between 64 per cent in India and 90 per cent in South Korea (best performer in the region).
- A gap of 67 per cent was found at the mid-level professional and technical roles. This narrowed to 89 per cent for frontline operational roles.
- Women in six markets in the index have higher wealth at retirement when compared with the global average. These include China (78 per cent), Japan (82 per cent), Philippines (79 per cent) and Singapore (79 per cent).

Why in news?

- The Income Tax Department has launched the HARIT Aaykar (Hariyali Achievement Resolution by Income Tax) initiative.

About the Initiative

- Launched by: Central Board of Direct taxes
- Objectives: to increase the green cover by planting trees and creating micro-forests in and around Income Tax Department's buildings and other public areas.
- Further, the Department would continue to welcome dignitaries at events and programmes organized by it, with potted plants or a single stalk of a flower.
- The first of such micro-forests has been inaugurated near the Attari border in Punjab.

Micro-Forests

- It is a small, planted forest that maximises tree density and biodiversity.
- Achieving this goal requires planting a wide variety of plants in a fairly dense manner so that the plot of land has different layers of a forest such as shrubs and canopies and not just trees.
- Plants typically require anywhere between eight to nine months of care before reaching a point where the micro forest becomes self-sustaining.

Why in news?

- "Niveshak Didi" programme launched in order to promote financial literacy "By the women, for the women," launched by India Post Payments Bank.

About Programme

- The Niveshak Didi programme launched under the direction of the Ministry of Corporate Affairs (MCA), the IPPB in conjunction with the Investor Education and Protection Fund Authority (IEPFA) launched it.
- The discussion addressed a wide range of subjects, including banking and financial products, the value of utilising the mainstream financial services provided by regulated businesses, protection against various forms of investment hazards, and methods of preventing fraud.
- 'Niveshak Didi' initiative is based on the ideology of women for women as rural area women feel more comfortable to share their queries with a female itself.

IPPB

- It was founded under the Department of Posts of the Ministry of Communication, and the Government of India owns all of the equity.
- The bank was founded with the goal of creating India's most approachable, inexpensive, and reliable bank for the average person.

Why in news?

- The Department of Economic Affairs (DEA), Ministry of Finance, Government of India, notified the Scheme for Financial Support for Project Development Expenses of PPP Projects – India Infrastructure Project Development Fund Scheme (IIPDF Scheme).

About IIPDF Scheme

- The India Infrastructure Project Development Fund Scheme (IIPDF) was launched by the Department of Economic Affairs (DEA).
- This central sector scheme extends financial aid required for the development expenses of Public Private Partnership (PPP) projects.

- It provides funding for project sponsoring authorities (both in the central and state governments) to access services provided by Transaction Advisors (TAs) and consultants involved in the development of the PPP projects.
- This will help effectively implement bankable viable PPP projects that seek to modernize infrastructure in India.
- The total corpus of the India Infrastructure Project Development Fund is 150 crore for three years.
- The new scheme is an addition to the currently operational Scheme for Financial Support to PPPs in Infrastructure (VGF Scheme), which was notified in December 2020.

About VGF Scheme

- The Scheme for Financial Support to Public Private Partnerships (PPPs) in Infrastructure Viability Gap Funding (VGF) was launched by the Department of Economic Affairs in 2006 to provide funding for PPP infrastructure projects that are economically justified but not commercially viable because of large capital requirements.
- The Viable Gap Funding (VGF) of 40 per cent of the Total Project Cost (TPC) is provided by the Indian Government and the sponsoring authority in the form of capital grant at the construction stage of the project.

Bio Energy Programme

Schemes

Why in news?

- The Ministry of New & Renewable Energy recently said it will continue National Bio Energy Programme till 2025-26 with a budget outlay of Rs 858 crore for the first phase.

National Bio Energy Programme

- The National Bioenergy Programme aims to promote bioenergy usage and create an investor-friendly ecosystem based on the circular economy. Bioenergy is derived from once-living organic materials called biomass that are used for producing transportation fuels, heat, electricity and other such products.
- The National Bioenergy Programme will be implemented in 2 phases.
- The first phase of the programme was approved by the Indian Government with a total budget of **Rs.858 crore**.
- The programme will have three sub-schemes. They are:
 - Waste to Energy Programme
 - Biomass Programme
 - Biogas Programme
- **Waste to Energy Programme** (Programme on Energy from Urban, Industrial and Agricultural Wastes /Residues) aims to use wastes produced by industrial, domestic and agricultural sectors to generate energy. To achieve this goal, the sub-scheme will help set up large biogas, bio-CNG and power plants. This does not include municipal solid waste to power projects.
- **Biomass Programme** (Scheme to Support Manufacturing of Briquettes & Pellets and Promotion of Biomass (non-bagasse) based cogeneration in Industries) will help set up pellets and briquettes that are used for generating power and also non-bagasse-based power generation projects.
- **Biogas Programme** will support family members to set up small and medium size biogas plants in rural regions.

Bio Energy in India

- India is capable of generating over 750 million metric tonnes of biomass each year, creating a huge potential for the generation of bioenergy.
- The Ministry of New & Renewable Energy has been promoting bioenergy in India since the 1980s to make use of the surplus biomass, cattle dung, industrial and urban biowaste that are generated within the country.

Google launches 'FloodHub', a platform to forecast flood

Schemes

Why in news?

- Google, an American technology giant, has launched a platform that displays flood forecasts, namely 'FloodHub'.

About FoodHub

- Google launched its flood forecasting services to safeguard people against disasters and natural calamities in 2018. Google states that the company has used an AI technique called transfer learning to make it work in areas where there is less data available.

- Google states that the company has used an AI technique called transfer learning to make it work in areas where there is less data available.
- The search engine has also integrated its Lens image recognition feature into many of its other features. It includes Google Chrome and Photos.

Middle East Green Initiative

Schemes

Why in news?

- Saudi Arabia recently committed 2.5 billion USD to the Middle East Green Initiative.

About MGI

- The Middle East Green Initiative is a first-of-its-kind regional alliance that was launched by the Saudi Arabia's Crown Prince Mohammed bin Salman in 2021 to curb greenhouse gas emissions from the Middle East. It has a clearly defined strategy for regional climate action, ensuring a coordinated and localized response to climate change that is affecting the region.
- It aims to reduce carbon emissions in the region by more than 60 per cent – more than 670 million tons of carbon equivalent. This plan includes increasing green cover by planting over 50 billion trees across the Middle East and restoring 200 million hectares of degraded land. It also seeks to increase the green land and marine reserves to 30 per cent of the total national area. The initiative will reduce the global carbon levels by
- 2.5 per cent.

About MGI Summit

- The MGI Summit is a regional dialogue on climate that brings together countries from Middle East and North Africa. The inaugural edition of the summit was hosted by Saudi Arabia in 2021.

SVAMITVA Scheme

Schemes

Why in news?

- The Union Minister for Panchayati Raj and Rural Development launched the new functionality developed wherein SMS will be rolled out to MPs and MLAs informing about the beginning of drone flying in their respective Constituency scheduled for survey under the SVAMITVA scheme.

About SVAMITVA Scheme

- SVAMITVA stands for 'Survey of Villages Abadi and Mapping with Improvised Technology in Village Areas'.
- SVAMITVA Scheme was launched in 2020 under the Ministry of Panchayati Raj.
- It aims to provide Record of Rights/Property Cards in rural areas through surveying drone technology.
- It aims to cover all the villages by 2025.

Expected outcome of SVAMITVA Scheme:

- It will help in creating accurate land records for rural planning and reduce property related disputes.
- It will bring financial stability in rural India by enabling people to use their property as a financial asset for taking loans and other financial benefits.
- It will help in improving rural area governance, proper assessment of property tax, and also help the government in the implementation of welfare schemes.

Significance of SVAMITVA Scheme:

- The digitization of land records will provide tamper-proof evidence of land ownership, and this will also reduce land related disputes.
- Digital mapping under SVAMITVA Scheme has promoted the drone ecosystem in the country.
- Increasing use of Drones will boost manufacturing industries, drone pilots and training institutes.
- It will promote MSMEs and Start-ups in the country.
- It will provide employment opportunities.
- Availability of digitized maps will support innovation in this sector.

In News

- The tech giant Google is currently developing an AI model that supports 1,000 most spoken languages of the world.

About Google's 1,000 Language AI Model

- Google's 1,000 language AI Model was announced at the AI event that was organized in November 2022.
- To investigate the potential of this massive project, Google is currently working on an AI language model that can support some 400 languages.
- This model is said to be the "largest language coverage" among existing speech models.
- AI language models aims to minimise the dependence on human labour for fields such as translation, customer service or computation.
- They automate manual processes and generate new insights based on the existing data.
- The deep learning processes of these AI models are used for instantly decoding foreign languages by making use of massive volumes of user data and content on their servers.

Other AI Models

- OpenAI, an artificial intelligence research firm, developed GPT-3 (Generative Pre-trained Transformer 3) set of models named Davinci, Curie, Babbage, and Ada to generate natural text responses and perform tasks such as classification, simple summaries, address correction, answering questions etc.
- Meta is developing an AI-based language translation. The company claims that its open-source M2M-100 model is said to be the first multilingual translation model that does not rely on English as the default language when it translates directly between 100 languages.
- The Facebook-parent company is also focusing on AI-based translation for not just text but also oral languages like Hokkien. Google is also currently collecting data for languages that are widely spoken but do not have online presence.

Why in news?

- The National Commission for Scheduled Tribes (NCST) has recently cleared the way for the inclusion of the 'Pahari ethnic group' in the Scheduled Tribes list of the Union Territory of Jammu and Kashmir.

About Pahari ethnic group

- The Pahari people is a cover term for a number of heterogeneous communities inhabiting the Indian regions of Jammu and Kashmir, Uttarakhand and Himachal Pradesh, and also parts of Pak occupying Kashmir.
- In Nepal, the Paharis constituted one of the largest indigenous ethnic group at about one-third of the Nepalese population through the 1990s.
- Pahari is an **ambiguous term used to describe a variety of Northern Indo-Aryan languages**, most of which are found in the lower Himalayas.
- They are divided into Eastern Pahari (which includes Nepali), Central Pahari, and Western Pahari, consisting of a number of different languages.
- The broadly named Pahari is among the regional languages listed in the sixth schedule of the Constitution of Jammu and Kashmir.

Why in news?

- The National Commission for Women (NCW) launched the fourth phase of Digital Shakti Campaign, a pan-India project on digitally empowering and skilling women and girls in the cyberspace recently.

Digital Shakti Campaign

- The Digital Shakti Campaign is a national-level campaign that was launched in 2018 to digitally empower and skill women and girls to ensure their safety in cyberspace.

- Through this initiative, over 3 lakh women across India have been made aware of cyber safety measures, reporting and redressal mechanisms, data privacy and technology usage.
- The third phase of this initiative was launched in March last year. It was launched in Leh by the National Commission for Women (NCW).
- In this phase, a Resource Center was developed to provide information about available avenues for reporting in case a woman becomes a victim of a cyber crime.
- The **Digital Shakti 4.0** aims to make women digitally skilled and aware to stand up against illegal or inappropriate activities occurring in the cyberspace.
- It was launched by the NCW in collaboration with the CyberPeace Foundation and Meta.
- Reason for launching
- Over the past decade, there has been a surge in the number of cybercrimes in India.
- A majority of these crimes targeted women. Some of the reasons behind this are prevalence of huge gender inequality and the lack of digital literacy.
- Also, most of the women who are victims of cybercrimes do not file complains due to the absence of support from family or law enforcement and the lack of awareness.

PM Launches Karmayogi Prarambh Module

Schemes

Why in news?

- Prime Minister Narendra Modi launched the Karmayogi Prarambh Module for all who are appointed under Rojgar Mela.

About Module

- The Karmayogi Prarambh module is an initiative under the Mission Karmayogi.
- It is an online orientation course for the new recruits of various government departments.
- It will help new government employees to understand the code of conduct required to adapt to the new role.
- Ethics in the workplace, integrity, human resource policies and other benefits, allowances, etc., are some of the topics focused on by the module.
- The objective of this online orientation programme is to keep the essence of civil service within the people of the country.

Karmayogi Mission

- National Programme for Civil Services Capacity Building (NPCSCB) was launched on September 20, 2020, to reform Indian bureaucracy at the individual, institutional and process levels for enhance public service delivery.
- It aims to upgrade the post-recruitment training mechanism of government officers and employees at all levels.
- This initiative is governed by Prime Minister's Human Resource Council, which includes chief ministers, union cabinet ministers and experts.

Har Ghar Gangajal scheme

Schemes

Why in news?

- Bihar Chief Minister Nitish Kumar today launched the Har Ghar Gangajal project in Rajgir.

About the scheme

- Under the Har Ghar Gangajal scheme, the surplus water from the Ganga river will be collected during the monsoon season to be treated, stored and piped to Rajgir, Gaya, and Bodhgaya – the regions that have long relied on tankers from nearby districts for drinking water source during the dry season.
- It will be launched as part of the state government's Jal, Jeevan, Hariyali scheme.
- The first phase of the project will be implemented with an outlay of Rs.4,000 crore.
- Under this phase, large pumps will lift Ganga water from Hathidah, close to Mokama, to supply water for to some 7.5 lakh homes in Rajgir, Bodhgaya, and Gaya.
- The collected water will initially be stored in reservoirs in Rajgir and Gaya, which will then be channeled to three treatment-and-purification plants.
- The project will make use of existing, renovated and new water connections to reach every beneficiary household.



- The second phase of the project, which is expected to be launched in 2023, will provide the Ganga water to Nawada.
- Under this scheme, every individual beneficiary will receive 135 litres (two large buckets) of Ganga water every day to be used for drinking and domestic purposes.

Significance

- Rajgir is a rocky and water-deficit region. Unplanned and indiscriminate use of groundwater has depleted the subterranean reservoirs and lowered the water table and affected the quality of the water in Gaya and Rajgir.
- A large portion of urban water supply continues to be delivered through tube wells.
- This has resulted in water tables depleting between 2 and 4 meters between 2014-15 and 2020-21.
- District administrations of these regions have been arranging water tankers to supply drinking water in the town areas during summer seasons.
- The Har Ghar Gangajal project aims to address this challenge.

Benefits

- Heavy silting of the riverbed, especially in Mokama, Hathidah, Barh, and Lakhisarai, and the release of water from dams upstream in Nepal has resulted in flooding even if the monsoon rainfall in Bihar is not exceptionally heavy.
- Har Ghar Gangajal scheme, while providing water sources for dry regions, will help alleviate distress caused by annual flooding of the Ganga River banks.
- The scheme would be implemented only during the four months of the monsoon seasons, when the Ganga river has surplus water.
- This ensures that the diversion of water does not lead to depletion of the river, disturb its natural flow and potential changes in its course.

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Why in news?

- The Union Minister of **Ports, Shipping & Waterways** (MoPSW) launched the India's first Centre of Excellence for Green Port & Shipping to provide Green solutions to transform Ports & Shipping sector in India.

About National Centre of Excellence for Green Port & Shipping (NCoEGPS)

- NCoEGPS will act as a **technological arm** of MoPSW for providing the needed support on Policy, Research and Cooperation on Green Shipping areas for Ports, DG Shipping, Corporate Social Lendings and other institutions.
- The Center will be a host of several technological arms to support the port and shipping sector and will provide solutions to a variety of problems being faced in the industry through scientific research.
- It will also carry out valuable education, applied research and technology transfer in maritime transportation at the **local, regional, national and International levels**.
- It will focus on the following areas:**
- Energy Management** - Energy management tools, waste energy recovery systems
- Emission Management**- Alternate, clean Energy/Fuel, emission control & monitoring.
- Sustainable Maritime Operations** – novel technologies and approaches
- The specific objectives of the formation of NCoEGPS are defined as follows -**
 - To empower 'Make in India'** in Port, Coastal and Inland water transport, and Engineering by developing state of art technologies and application products.
 - To enable fast-track innovations** in order to provide most appropriate solutions to various challenges in these sectors.
 - To create a pool of competent manpower** to the industry equipped with state of the art theoretical and practical knowhow.
 - Self-sufficiency in providing short term solutions** through scientific studies technology development technical arm in identifying and analysing complex problems and solving issues

Project Implementation:

- The **Energy and Resources Institute (TERI)** is the knowledge and implementation partner for this project.
- The **Deendayal Port Authority** Kandla, **Paradip Port Authority**, Paradip, **V.O Chidambaranar Port Authority**, Thoothukudi and **Cochin Shipyard Limited**, Kochi has all extended their support to the ministry to set up the centre.
- The ports have also aimed to reduce **Carbon emissions per ton of cargo** handled by 30% by 2030.
- India will also be implementing **IMO energy efficiency requirements** for existing ships and carbon intensity requirements on all its vessels whether coastal or international in order to help achieve **IMO GHG reduction targets**.
- The NCoEGPS will be working under the framework of the **Sagarmalaprogramme** of the MoPSW.

Why in news?

- India's National Grid Operator "Power System Operation Corporation Limited (POSOCO)" recently announced that POSOCO has changed its name to "Grid Controller of India Limited".

About:

- The change in name has been made to reflect the critical role of Grid Operators in ensuring integrity, reliability, economy, resilience and sustainable operation of the Indian Electricity Grid.
- "Grid Controller of India Limited (Grid-India)" operates the **National Load Despatch Centre (NLDC)** and **five (5) Regional Load Despatch Centres (RLDCs)**.

- Grid-India is also designated as the **nodal agency for major reforms in the power sector** such as implementation and operation of Green Energy Open Access Portal, Renewable Energy Certificate (REC) Mechanism, transmission pricing, short term open access in transmission, Deviation Settlement Mechanism, Power System Development Fund (PSDF), etc.

NFRA's Audit Quality Inspection Guidelines

Economy

Why in news?

- The National Financial Reporting Authority (NFRA) has recently published guidelines on audit quality inspection, in a bid to further improve the standards of auditors.

Key guidelines

- The inspection **guidelines are based on recommendations of the International Forum for Independent Audit Regulators (IFIAR)**, which comprise audit regulators of 54 countries.
- NFRA will pick the audit firms for such inspections based on its own risk identification parameters along with other factors such as the size of the firm and nature of audits that they conduct.
- In some cases, audit firms may also be selected based on specific concerns highlighted by the government or any other regulatory agency.
- **NFRA's inspections will consist of firm-wide review of audit quality (SQC1) and individual file reviews** on test-check basis to evaluate the level of compliance with applicable auditing standards and quality control policy and processes.
- **The NFRA guidelines focus on three aspects:** adequacy of governance framework, ascertaining the effectiveness of an audit firm's internal controls and evaluating the audit risks along with mitigating measures.

International Forum for Independent Audit Regulators (IFIAR)

- It is a global member organization comprising independent audit regulators from 54 jurisdictions.
- IFIAR was established in Paris in 2006.
- Its members are audit regulators and supervisors from the continents of Africa, Asia, Europe, North and South America and Oceania.
- IFIAR holds a Plenary meeting annually to discuss broad issues related to audit quality matters.

About NFRA-

- It **was constituted on 1st October, 2018 by the Government of India** under Sub Section (1) of Section 132 of the Companies Act, 2013.
- The NFRA is **an independent regulator overseeing the auditing profession**, and its creation was first recommended by the Standing Committee on Finance in its 21st report.
- It recommends accounting and auditing policies and standards to be adopted by companies for approval by the Central Government.
- It monitors and enforces compliance with accounting standards and auditing standards.
- It oversees the quality of service of the professions associated with ensuring compliance with such standards and suggests measures for improvement in the quality of service.
- Apart from setting the rules and regulations governing the audit sector, the NFRA has the power to debar erring auditors or audit firms for up to 10 years and impose significant fines on them.
- As per rule 3 of the NFRA rules, 2018, the Authority shall have the power to monitor and enforce compliance with accounting standards and auditing standards, oversee the quality of service or undertake the investigation of such sections of the auditors.

Why in news?

- The Reserve Bank of India (RBI) will commence pilot launches of the digital rupee from November 1. It has identified nine banks for participation in the pilot launch.

**Digital Rupee**

- The digital rupee will be different from Bitcoin, Ethereum and other cryptocurrencies in the sense it will be backed by the government.
- Secondly, having an intrinsic value on account of government backing, the digital rupee will be equivalent to holding a physical rupee equivalent
- A Central Bank Digital Currency (CBDC) or Digital Rupee is a digital form of currency notes issued by a central bank. Digital currency or rupee is an electronic form of money, that can be used in contactless transactions.
- Presenting Union Budget 2022, Finance Minister Nirmala Sitharaman announced that the Reserve Bank of India (RBI) would be rolling out its digital currency soon.
- The nine banks are State Bank of India, Bank of Baroda, Union Bank of India, HDFC Bank, ICICI Bank, Kotak Mahindra Bank, Yes Bank, IDFC First Bank and HSBC.

Benefits of Digital Rupee

- Apart from reducing the transaction cost, having a digitised currency will make it easier for governments to access all transactions happening within the authorized networks.
- "It will become impossible to avoid the gaze of the government, thus subjecting every transaction to relevant laws within the country.
- Hence, the government will have better control over how money leaves and enters the country, which would allow them to create a space for better budgeting and economic plans for the future, and overall a much safer environment.

CBDC can be classified into two types

- Retail (CBDC-R): Retail CBDC would be potentially available for use by all
- Wholesale (CBDC-W) is designed for restricted access to select financial institutions.

Difference between digital rupee and cryptocurrency

- A cryptocurrency is a decentralised digital asset and a medium of exchange based on blockchain technology.
- However, it has primarily been controversial due to its decentralised nature, meaning its operation without any intermediary like banks, financial institutions, or central authorities.
- On the Contrary, Central Bank Digital Currency (CBDC) issued by the Reserve Bank of India (RBI) will be a legal tender in a digital form.

Why in news?

- India has recently assumed the Chair of the Global Partnership on Artificial Intelligence (GPAI).

About GPAI

- It is an international initiative to support responsible and human-centric development and use of Artificial Intelligence (AI).
- GPAI is a congregation of 25 member countries**, including the US, the UK, EU, Australia, Canada, France, Germany, Italy, Japan, Mexico, New Zealand, Republic of Korea, and Singapore.
- India had in 2020 joined the group as a founding member.**
- It is a **first-of-its-type initiative** for evolving better understanding of challenges and opportunities around AI.

- It **works in collaboration with partners and international organisations**, leading experts from industry, civil society, governments, and academia to collaborate to promote responsible evolution of AI and guide the responsible development and use of AI, grounded in human rights, inclusion, diversity, innovation, and economic growth.

1st ASEAN-India Start-up Festival 2022

Economy

Why in news?

- The 1st ASEAN-India Start-up Festival (AISF) was inaugurated by Dr. Srivari Chandrashekhar, Secretary, Department of Science and Technology recently in Indonesia.

About Start-up festival

- In 2021, 25 new unicorns in ASEAN were included with their combined valuation at USD 55.4 billion.
- The 1st ASEAN-India Start-up Festival will further strengthen the ASEAN-India cooperation to accelerate the start-up economy.
- The festival is part of the overall ASEAN-India Science, Technology, and Innovation Corporation program between the ASEAN Committee on Science Technology, and Innovation (COSTI) and the Department of Science and Technology (GoI).
- It is supported under the ASEAN-India Science and Technology Development Fund (ADF) of Govt of India.
- The four-day event is being hosted in conjunction with the Indonesian Research and Innovation Expo (INA- RIE) from the 27th until the 30th of October 2022 at the Innovation Convention Centre, Cibinong Bogor, Indonesia.

PM Gati Shakti Multimodal Waterways Summit 2022

Economy

Why in news?

- With the aim to further strengthen the role of inland waterways, the 'PM Gati Shakti Multimodal Waterways Summit 2022' gets underway in Varanasi.

PM Gati Shakti Scheme

- Aim: To ensure integrated planning and implementation of infrastructure projects in the next four years, with focus on expediting works on the ground, saving costs and creating jobs.
- The Gati Shakti scheme will subsume the Rs 110 lakh crore National Infrastructure Pipeline that was launched in 2019.
- Besides cutting logistics costs, the scheme is also aimed at increasing cargo handling capacity and reducing the turnaround time at ports to boost trade.
- It also aims to have 11 industrial corridors and two new defence corridors - one in Tamil Nadu and other in Uttar Pradesh. Extending 4G connectivity to all villages is another aim. Adding 17,000 kms to the gas pipeline network is being planned.
- It will help in fulfilling the ambitious targets set by the government for 2024-25, including expanding the length of the national highway network to 2 lakh kms, creation of more than 200 new airports, heliports and water aerodromes.

Green Washing

Economy

Why in news?

- Recently, the United Nations Secretary General has warned private corporations to desist the practice of Greenwashing and mend their ways within a year.

GreenWashing

- The term greenwashing was first used in 1986 by Jay Westerveld, an American environmentalist and researcher.



- Greenwashing is the practice in which firms and governments mark all kinds of activities as climate-friendly, as something that would lead to emissions reduction, or avoidance of emissions.
- Many of these claims are unverifiable, misleading, or dubious.
- While it helps in boosting the image of the entity, they do nothing in the fight against climate change.
- Several multinational corporations, including oil giants like Shell and BP, and Coca Cola have faced accusations of greenwashing.
- Greenwashing is prevalent across a whole range of environmental activities.
- Developed countries are often accused of greenwashing their normal business investments in developing countries by highlighting climate co-benefits of the financial flows, sometimes with very little justification.

About Carbon Credit

- A carbon credit (also known as carbon offset) is a credit for greenhouse emissions reduced or removed from the atmosphere by an emission reduction project, which can be used by governments, industry, or private individuals to compensate for the emissions they generate elsewhere.
- Those that cannot easily reduce emissions can still operate, at a higher financial cost.
- Carbon credits are based on the "cap-and-trade" model that was used to reduce sulfur pollution in the 1990s.
- One carbon credit is equal to one metric ton of carbon dioxide, or in some markets, carbon dioxide equivalent gases (CO₂-eq).

Eat Right Station' certification

Economy

Why in news?

- Recently, Bhopal Railway Station has been awarded a 4- star 'Eat Right Station' certification for providing high-quality, nutritious food to passengers.

Eat Right Certification

- The 'Eat Right Station' certification is awarded by Food Safety and Standards Authority of India (FSSAI) to railway stations that set benchmarks in providing safe and wholesome food to passengers.
- The station is awarded a certificate upon a conclusion of an FSSAI-empanelled third-party audit agency with ratings from 1 to 5.
- The certification is part of the 'Eat Right India' movement.

Eat Right Movement

- It is an initiative of FSSAI to transform the country's food system in order to ensure safe, healthy and sustainable food for all Indians. Its tagline is 'Sahi Bhojan, Behtar Jeevan'.
- It is aligned to the National Health Policy 2017 with its focus on preventive and promotive healthcare and flagship programmes like Ayushman Bharat, POSHAN Abhiyaan, Anaemia Mukt Bharat and Swachh Bharat Mission.
- Eat Right India adopts a judicious mix of regulatory, capacity building, collaborative, and empowerment approaches to ensure that our food is suitable both for the people and the planet.

International Alliance to boost Offshore Wind Power

Economy

Why in news?

- Nine new countries have joined an international alliance at the United Nations-Conference of Parties (UN-COP27) climate summit, pledging to a rapid ramp up of offshore wind power, in order to tackle the climate and energy security crises.

About the Alliance

- The alliance, initiated by the International Renewable Energy Agency (IRENA), Denmark and the Global Wind Energy Council, will bring together governments, the private sector, international organisations and other stakeholders to accelerate the deployment of offshore wind power.



- Offshore wind energy is the generation of electricity through wind farms in bodies of water, usually at sea.
- There are higher wind speeds offshore than on land, so offshore farms generate more electricity per amount of capacity installed.
- It aims to drive installed global offshore wind capacity up by 670 per cent — from 57 GW in 2021 to 380 GW in 2030.
- The countries which joined GOWA include Belgium, Colombia, Germany, Ireland, Japan, the Netherlands, Norway, the United Kingdom, and the United States of America.

First multimodal Logistics Park

Economy

Why in news?

- Reliance Industries Ltd (RIL) has been awarded the project to build India's first multimodal logistics park (MMLP) in Chennai, Tamil Nadu.

About India's first multimodal logistics park (MMLP)-

- MMLP will be spread over 184 acres and cost Rs 1,424 crore.
- The project will get **adequate connecting infrastructure support through a special purpose vehicle (SPV)** formed between central and state agencies..
- MMLP at Chennai which is strategically located 52 Km from Chennai Port, 80 Km from Ennore Por.
- It is estimated to cater to 7.17 Million Metric Tonne (MMT) cargo in a horizon period of 45 year.
- Moreover, **it is one of the several flagship projects announced under the Bharatmala Project of the Ministry of Road Transport and Highways**, which envisions the building of 35 such MMLPs.
- **The Centre plans to build 15 of these within the next two years.** Under the National Logistics Policy (NLP) and PM-GatiShakti, it wants to bring down logistics costs to under 10 per cent of the GDP in a bid to make exports competitive and supply chains more efficient.
- **MMLPs will act as centres for freight aggregation and distribution, storage** and warehousing, providing added incentives to logistics companies such as customs clearances.
- These parks will also **facilitate intermodal transportation – roads, railways, and inland waterways**, with the aim of strengthening and diversifying the logistics system.

Global Vaccine Market Report 2022

Economy

Why in news?

- World Health Organization(WHO) has released the Global Vaccine Market Report 2022 recently.

Key highlights of the report-

- This is the first report to capture the implications of COVID-19 for vaccine markets.
- As per the report, critical vaccines in demand by high-income countries continue to be in short supply for low-income countries.
- Decades-long progress in development, supply and access to doses remains overshadowed by an unfavourable environment.
- The **burden of cervical cancer is higher in low-income countries** in spite of which the human papillomavirus vaccine has been introduced only in 41 percent of these countries.
- In comparison, 83 percent of high-income countries have access to the HPV vaccine.
- The right to health includes the right to vaccines, this new report shows that free-market dynamics deprive some of the world's poorest and most vulnerable people of that right.
- The **COVID-19 vaccine accounted for most of the 16 billion vaccine doses**, worth \$141 billion, supplied in 2021.
- This was a major push for the market — with the volume rising three-fold compared to 2019 and nearly three-and-a-half times the 2019 market value.
- More than 90 manufacturers were supplying vaccines to WHO member states across the world in 2021.
- However, less than 10 managed a bulk of the supply due to "broad portfolios, global reach and a diversity of deployable technology."

- Only two manufacturers are supplying key vaccines such as pneumococcal vaccines, measles and rubella-containing vaccines across the world.
- Policies and supply chains in specific regions dictate access to vaccines, due to which the African and eastern Mediterranean regions fare the worst.
- These regions rely on international manufacturers for 90 per cent of their procured vaccines.
- The Global Vaccine Market Report listed possible changes which can be made to initiate a paradigm shift in the vaccine market.
- These include: "clear immunisation plans and more aggressive investment and stronger oversight of vaccine development, production and distribution."

Illegal, Unreported and Unregulated (IUU) Fishing

Economy

Why in news?

- According to Indian Navy, as many as 392 reported incidents of illegal, unreported and unregulated fishing were monitored in 2021 compared to 379 in 2020 in the Indian Ocean.

About IUU

- IUU fishing depletes fish stocks, destroys marine habitats, puts fishermen at disadvantage and impacts coastal communities, especially in developing countries.
- As per the United Nations Convention on the Law of the Sea (UNCLOS), coastal nations are responsible for addressing IUU fishing issues within their respective EEZ.
- There are two main regulations globally on IUU fishing: the Cape Town Agreement and the Agreement on Ports State Measures. So far, India is not a signatory of either agreement.
- In July 2022, Agreement on Fisheries Subsidies (AFS) was concluded at WTO ministerial meeting and it prohibited subsidies from being provided for IUU fishing and overfished stocks.
- The agreement also prohibits providing subsidies for fishing on high seas, which are outside the jurisdiction of coastal countries.

Information Management and Analysis Centre (IMAC)

- The presence of extra-regional distant water fishing fleets has been monitored by Information Management and Analysis Centre (IMAC).
- The Quad, comprising India, Australia, Japan and U.S., in May 2022 announced a major regional effort under the ambit of Indo-Pacific Maritime Domain Awareness (IPMDA).
- It aims to provide a more accurate maritime picture of "near-real-time" activities in the region.
- It is expected to catalyse joint efforts of India and other Quad partners towards addressing IUU in Indo-Pacific region.
- All vessel movements on the high seas are monitored by the Indian Navy's IMAC in Gurugram and the Information Fusion Centre-Indian Ocean Region (IFC-IOR) which is co-located with it.
- IFC-IOR has been collaborating with other regional monitoring centres across the globe to enhance maritime safety and security, including efforts to monitor IUU.

Vostro Accounts

Economy

Why in news?

- As many as nine special vostro accounts have been opened with two Indian banks after permission from the Reserve Bank of India to facilitate overseas trade in rupee.

Nostro Account

- A Nostro account is an account held by a bank in another bank. It allows the customers to deposit money in the bank's account in another bank. It is often used if a bank has no branches in a foreign country. Nostro is a Latin word that means "ours".
- Let's presume bank "A" does not have any branches in the Russia, but bank "B" does. Now, to receive the deposits in the Russia, "A" will open a Nostro account with "B".



- Now, if any customers in the Russia want to send money to "A", they can deposit it into A's account in "B". "B" will transfer the money to "A".
- The main difference between a deposit account and a Nostro account is that the former is held by individual depositors while foreign institutions hold the latter.

Vostro Account

- The word Vostro means yours in Latin.
- A Nostro account is a Vostro account for the bank that opens the account.
- In the above example, the account will be called a Vostro account for bank "B". The Vostro account accepts the payments on behalf of the account holder's bank.
- If a person deposits money in the Vostro account, it will be transferred to the account holder's bank.
- Nostro and Vostro accounts are held in a foreign denomination.
- Vostro accounts enable domestic banks to provide international banking services to their clients who have global banking needs.
- Vostro account services include executing wire transfers, performing foreign exchange transactions, enabling deposits and withdrawals, and expediting international trade.

Self Reliant India (SRI) fund

Economy

Why in news?

- The Self Reliant India (SRI) fund, has committed to deploy Rs 5,000 crore, almost 50 per cent of its total corpus, in 38 private equity (PE) and venture capital (VC) firms.

About SRI fund

- **SRI Fund is a SEBI-registered category-II Alternative Investment Fund (AIF)** that will operate through mother-fund and daughter-fund structure.
- The scheme is being implemented by a special purpose vehicle called **NSIC Venture Capital Fund Limited (NVCFL)**.
- NVCFL is a 100% subsidiary of **National Small Industries Corporation Limited (NSIC)**, a **Mini-Ratna Corporation of Government of India under Ministry of Micro, Small and Medium Enterprises (MoMSME), Government of India**.

Objectives of SRI Fund

- **SRI Fund** will be oriented towards providing funding support to the Daughter Funds for onward provision to MSMEs as growth capital, in the form of equity or quasi-equity, for:
 - Enhancing equity/equity like financing to MSMEs and listing of MSMEs on Stock's Exchanges
 - Supporting faster growth of MSME Businesses and thereby ignite the economy and create employment opportunities;
 - Supporting enterprises which have the potential to graduate beyond the MSME bracket and become National / International Champions;
 - Supporting MSMEs which help making India self-reliant by producing relevant technologies, goods and services.

Structure of SRI Fund

- SRI Fund will employ a **'Fund-of-Fund'** investment strategy (rather than investing directly) wherein the Fund shall invest in **SEBI registered Category I and Category II Alternative Investment Funds** ("Daughter Funds"), which shall in turn invest in MSMEs.
- The government is the sole anchor investor with the initial budgetary support of Rs 10,000 as the mother fund.
- The rest 80 per cent of the Rs 50,000 crore fund will come from daughter funds that will raise capital from outside sources such as banks, financial institutions, HNIs, venture capital and private equity investors, institutional investors, public sector units, pension funds, foreign developmental institutions, etc.



Eligibility to Access the Fund

- MSMEs, defined as per the MSME Act, as amended from time to time, shall be eligible for consideration.
- Non-profit institutions, NBFCs, financial inclusion sector, micro credit sector, SHGs and other financial intermediaries shall not be eligible for consideration.

Other Features of the Act

- The fund will seek to actively encourage different term sheets with a view to ensuring non-linear returns envisaged from venture capital funding.
- It will also factor in the non-monetary aspects, in terms of employment, reduction in regional disparity, overall economic development and establishing supply chains with depth and resilience.

Alternate investment funds(AIFs)

- Alternate investment funds(AIFs) are defined under the Securities and Exchange Board of India (Alternative Investment Funds) Regulations, 2012.
- It refers to any privately pooled investment fund(whether from Indian or foreign sources) established or incorporated in India for investing it in accordance with a defined investment policy.
- An alternative investment is a financial asset that does not fall into one of the conventional equity/income/cash categories.
- For example, private equity or venture capital, hedge funds, commodities, and tangible assets
- AIF does not include funds covered under the SEBI (Mutual Funds) Regulations, 1996, SEBI (Collective Investment Schemes) Regulations, 1999 or any other regulations of the Board to regulate fund management activities.

Categories of AIF:

- **Category I:**
 - Under this, the funds are mainly invested in start-ups, SMEs or any other sector which Govt. considers economically and socially viable.
 - Examples include venture capital funds, social venture funds, infrastructure funds and other Alternative Investment Funds as may be specified.
- **Category II:**
 - Under this category, funds that are invested in equity securities and debt securities are included.
 - These funds do not fall in Category I and III. They also do not undertake leverage or borrowing other than to meet day-to-day operational requirements.
 - Examples include real estate funds, private equity funds (PE funds), and funds for distressed assets.
- **Category III:**
 - Under this category, funds are invested with a view to make short term return. The companies employ diverse or complex trading strategies and may also employ leverage including through investment in listed or unlisted derivatives.
 - Examples include hedge funds, PIPE Funds.

GOI to Abolish National Anti-profiteering Authority

Economy

Why in news?

- National Anti-profiteering Authority(NAA) is the anti-profiteering watchdog of GST and it is all set to be subsumed into the Competition Commission of India (CCI).

About NAA

- The National Anti-Profiteering Authority (NAA) was constituted under Section 171 of the Central Goods and Services Tax Act, 2017.
- The formation of NAA comes in the background of rate-reduction of a large number of items by GST Council which has made tremendous price reduction effect but the consumers will be benefited only if the traders are making the quick reduction of prices of respective items.



- The anti-profiteering clause under the Goods And Services Tax (GST) Act mentions that any reduction in the rate of tax on any goods or services or the benefit of input tax credit must be passed on to the consumer by way of commensurate reduction in the prices of the respective goods or services.
- The Authority's main function is to ensure that traders are not realizing an unfair profit by charging high price from consumers in the name of GST and to examine and check such profiteering activities and recommend punitive actions including the cancellation of Registration.
- NAA comprises of Chairman, four Technical members, a Standing Committee, Screening Committees in every State and the Directorate General of Safeguards in the Central Board of Excise & Customs (CBEC).
- The orders of the NAA can be appealed against only in the high court.

IIPDF Scheme

Economy

Why in news?

- Department of Economic Affairs (DEA), Ministry of Finance has notified Scheme for Financial Support for Project Development Expenses of PPP Projects – India Infrastructure Project Development Fund Scheme (IIPDF Scheme).

Key features of the scheme

- DEA has come out with Scheme for Financial Support for Project Development Expenses of PPP Projects – 'IIPDF Scheme' for **providing necessary support to the PSAs, both in the Central and State Governments, by extending financial assistance** in meeting the cost of transaction advisors and consultants engaged in the development of PPP projects.
- As a **Central Sector Scheme**, the IIPDF Scheme will **aid development of quality PPP projects** by providing necessary funding support to the project sponsoring authorities, both in the Central and State Governments, for creating a shelf of bankable viable PPP projects for achieving the vision of modern infrastructure for the country.
- The corpus of this fund is Rs 150 crore for three years.
- **Funding under IIPDF Scheme is in addition to the already operational Scheme for Financial Support to PPPs in Infrastructure (VGF Scheme)** notified in 2020, through which infrastructure projects undertaken through PPP mode that are economically justified but commercially unviable are supported.

Nicobari Hodi Craft

Economy

Why in news?

- Recently, the Andaman & Nicobar Islands has filed an application, seeking the Geographical Indication (GI) tag for the Nicobari Hodi craft.

Nicobari hodi

- The hodi is the Nicobari tribe's traditional craft. It is an outrigger canoe, very commonly operated in the Nicobar group of islands.
- The technical skills for building a hodi are based on indigenous knowledge inherited by the Nicobarese from their forefathers.
- The hodi is built using either locally available trees or from nearby islands, and its design varies slightly from island to island.
- Considerations to be taken into account include the length of the finished canoe, which has to be 12 times that of its width, while the length of the undressed tree trunk has to be 15 times this width.
- Hodis are used for transporting people and goods from one island to another, for sending coconuts, for fishing and racing purposes.
- The tuhet, a group of families under a headman, consider the hodi an asset. Hodi races are held between islands and villages.

Why in news?

- IDFC FIRST Bank has partnered with National Payments Corporation of India (NPCI) to launch FIRSTAP, the country's first sticker-based debit card.

About FIRSTAP

- The FIRSTAP was launched by the IDFC First Bank in line with its customer-centric philosophy.
- It is one-third the size of a regular debit card.
- It can be stuck on any surface of the customer's choice, like cell phones, identity cards, wallets, tabs, airpod cases etc.
- It can be stuck on wearable devices like watches and rings as well. It enables transactions up to Rs.5,000 without a PIN and those beyond that requires the entry of PIN.
- This sticker debit card comes with a complementary personal accidental cover and 24/7 concierge services. It also includes several RuPay offers.
- A sticker-based debit card allows the user to make transactions by simply tapping the sticker on near-field communication (NFC)-enabled point-of sale terminal.
- It can be used to tap and pay in stores, restaurants and other places without the need to carry a debit card.

About NPCI

- National Payments Corporation of India (NPCI) is a specialized division of the Reserve Bank of India (RBI) that was established to operate retail payments and settlement systems in India.
- It was incorporated in 2008 as a not-for-profit company under Section 8 of Companies Act 2013.
- It is a joint initiative of the RBI and the Indian Banks' Association under the provisions of the Payment and Settlement Systems Act, 2007.

Why in news?

- The Maharashtra government recently issued a government resolution and formed the Maharashtra Institution for Transformation – MITRA. MITRA would be along the lines of NITI Aayog.

About MITRA

- The Maharashtra Institute for Transformation would be the state's think tank for comprehensive data analysis and to make studied decisions on various sectors.
- The transformation would achieve the target of making the state a \$1 trillion economy by 2027 and a \$3.5 trillion economy by 2047.

NITI Aayog

- Planning Commission was replaced by a new institution – NITI Aayog on January 1, 2015 with emphasis on 'Bottom –Up' approach to envisage the vision of Maximum Governance, Minimum Government, echoing the spirit of 'Cooperative Federalism'.
- It serves as an advisory Think Tank.
- It serves in spirit of Cooperative Federalism as states are equal partners.
- Secretaries to be known as CEO appointed by Prime- Minister. Recently, Parmeswaran Iyer became the CEO of NITI Aayog.
- It focuses upon 'Bottom-Up' approach of Planning.

Why in news?

- India has won the International Electrotechnical Commission (IEC) Vice Presidency and Strategic Management Board (SMB) Chair for the 2023-25 term.

Key updates-

- By securing over 90% of the votes, India's representative, a member of the Indian National Committee of the International Electrotechnical Commission (IEC) and various technical committees of Bureau of Indian Standards (BIS-India), was elected.
- Representation of BIS (India) in policy and governance bodies of International Organization for Standardization (ISO)** and IEC ensures that Indian viewpoints on the important strategic and policy matters are put forth and it also provides opportunities to align the national standardization priorities with International best practices.
- BIS is continually expanding its international footprints.
- Currently, BIS (India) is represented in various policy and governance bodies of International Organization for Standardization (ISO) and IEC such as ISO Council, ISO Technical Management Board (TMB), IEC SMB, IEC Market Strategy Board (MSB), IEC Business Advisory Committee (BAC), etc.**

International Electrotechnical Commission (IEC)**About IEC**

- The International Electrotechnical Commission is an international standards organization that prepares and publishes international standards for all electrical, electronic and related technologies – collectively known as "electrotechnology".
- The IEC was officially founded in June 1906, in London, England. Ever since it has made electrical and electronic technologies safer, more efficient and more reliable. Ever since it has made electrical and electronic technologies safer, more efficient and
- IEC standards cover a vast range of technologies from power generation, transmission and distribution to home appliances and office equipment, semiconductors, fibre optics, batteries, solar energy, nanotechnology and marine energy as well as many others.
- The IEC also manages four global conformity assessment systems that certify whether equipment, system or components conform to its international standards.
- All electrotechnologies are covered by IEC Standards, including energy production and distribution, electronics, magnetism and electromagnetics, electroacoustics, multimedia, telecommunication and medical technology, as well as associated general disciplines such as terminology and symbols, electromagnetic compatibility, measurement and performance, dependability, design and development, safety and the environment.
- The IEC cooperates closely with the International Organization for Standardization (ISO) and the International Telecommunication Union (ITU).
- Standardization Management Board (SMB) is an apex governance body of the IEC responsible for technical policy matters.

Standardization Management Board (SMB)-

- Standardization Management Board (SMB) is an apex governance body of IEC responsible for technical policy matters.
- The IEC Board delegates to the Standardization Management Board (SMB) the management of the standards work of the Commission.
- The SMB shall take any action it considers necessary to ensure the proper and expeditious operation of the standards work.
- The SMB shall consist of:
 - A Chair (without vote).
 - 15 members, elected by the General Assembly and their alternates appointed by the relevant National Committees.
 - The Treasurer (ex officio, without vote).
 - The Secretary-General (ex officio, without vote).
- The SMB shall report its actions to the IEC Board.

Why in news?

- Recently, the US secretary of treasury has pushed for "friendshoring" to diversify trade away from countries that are present at geopolitical risk.

Friendshoring

- Friendshoring is a strategy where a country sources the raw materials, components and even manufactured goods from countries that share its values. The dependence on the countries considered a "threat" to the stability of the supply chains is slowly reduced.
- It is also called "allyshoring".
- For the US, Russia has long presented itself as a reliable energy partner, but in the Ukraine war, it has weaponized the gas against the people of Europe.
- It's an example of how malicious actors can use their market positions to try to gain geopolitical leverage or disrupt trade for their own gain.
- Friend-shoring or ally-shoring has become a means for the US to influence firms to move their sourcing and manufacturing sites to friendly shores—often back to the same shores in the case of the US.
- The purpose of Friendshoring is to insulate countries' supply chains from less like-minded nations, such as China in case of the US.

Implications

- Friendshoring may push the world towards a more isolated place for trade and reverse the gains of globalization. It is a part of the "deglobalisation" process.
- After the global economy has been influenced by the years-long lockdown of Covid-19, any form of protectionism will further disrupt the already unstable global supply chain.
- This new form of protectionism will not be conducive to globalization while affecting the global supply chain and economy. And in the long term, this could backfire if a company relies on some country—for lithium for batteries, say, or precious metals for computer chips—feels alienated.

Why in news?

- Recently, the Parliament of Australia has approved the India- Australia ECTA.

About Ind-Aus ECTA

- It is India's first Free Trade Agreement (FTA) with a significantly developed nation in more than ten years.
- The Agreement covers cooperation in the following areas across the whole spectrum of bilateral economic and commercial ties between the two friendly nations:
 - Trade in Goods, Rules of Origin
 - Exchange of Services
 - Technical Trade Barriers (TBT)
 - SPS (sanitary and phytosanitary) precautions
 - Settlement of Disputes, Movement of Natural Persons
 - Procedures for Telecom and Customs
 - Pharmaceuticals and other areas of cooperation
- A formal framework for promoting and enhancing trade between the two nations is provided by ECTA.
- Nearly all of the tariff lines that India and Australia deal in, are covered by the ECTA.
- India will profit from Australia's offer of preferential market access on all of its tariff lines.
- This comprises all the labor-intensive export industries that India is interested in, such as textiles, leather goods, footwear, furniture, gems, and jewelry.
- On the other hand, India will grant Australia preferential access to more than 70% of its tariff lines, including those that are relevant to Australia's export interests and are principally for the importation of raw materials and intermediaries like coal, mineral ores, and wine.
- Indian STEM (Science, Technology, Engineering, and Mathematics) graduates will be eligible for extended post-study work visas under the terms of the agreement.

- Additionally, Australia will establish a scheme to issue visas to young Indians desiring to take working holidays there.
- A limit of 1800 visas will be issued each year to Indian chefs and yoga instructors.
- Additionally, it is predicted that ECTA will result in the creation of 10 lakh new jobs.

The India- Australia Relations

- Excellent bilateral ties exist between Australia and India, which have recently experienced a transformational evolution and are progressing well towards becoming a cordial friendship.
- This unique cooperation is characterized by common principles of liberal parliamentary democracies, Commonwealth traditions, growing economic participation, long-standing inter-ethnic ties, and rising high-level interaction.
- The cornerstone of the complex bilateral relations between India and Australia is the Comprehensive Strategic Partnership, which was launched during the Leaders' Virtual Summit in June 2020.
- A fast broadening and strengthening bilateral relationship between India and Australia is strengthened and stabilized by expanding economic and commercial ties between the two nations.
- Australia and India have both been significant trading partners for one another.
 - India's 17th largest trading partner is Australia, while Australia's 9th largest trading partner is India.
 - In 2021, the bilateral commerce between India and Australia would be worth USD 27.5 billion in goods and services.
 - India's exports of goods to Australia increased by 135 percent between 2019 and 2021. India exported USD 6.9 billion worth of goods in 2021, the majority of which were finished goods from a diverse range of industries.
 - In 2021, India imported commodities worth USD 15.1 billion from Australia, primarily in the form of raw materials, minerals, and intermediate products.
 - The trilateral Supply Chain Resilience Initiative (SCRI), which aims to improve the resilience of supply networks in the Indo-Pacific Region, includes Japan, India, and Australia as partners.

US New National Security Strategy

International Relations

Why in news?

- The United States has launched its National Security Strategy (NSS).

About NSS

- The NSS takes both a long-term and an immediate view of the China threat and the challenges emerging from Beijing.
- While it seeks to outline a joint strategy to tackle external challenges for the U.S. by out-competing China and constraining Russia, it is asymmetrically tilted in its focus on threats from China despite an active war in which Russia is involved.
- The Biden administration places competition with China at the centre of its decadal outlook, which is increasingly global in character and most pronounced in the Indo-Pacific region across a range of domains such as the economy, technology, development, security, global governance and diplomacy.
- The NSS is clear about the opposition to any unilateral change to Taiwan's status by China, portending a contested Indo-Pacific region between China on one hand and a host of democratic partners on the other.

India as Long-Term Partner

- The Biden administration's NSS identifies India as both a bilateral and multilateral partner in the Indo-Pacific, but, more importantly, its status as the largest democracy and a major defence partner.
- As India looks to diversify and indigenise its defence needs in the medium and long term, the NSS lays out the space for partnership between India and the U.S.
- India's partnership in the Indo-Pacific has been assessed as critical in building a "lattice-work of strong, resilient and mutually reinforcing relationships" through regional partnerships such as the Quad (India, Australia, Japan, the U.S.) and the I2U2 (India, Israel, the United Arab Emirates, and the U.S.).

Dirty bomb' work

International Relations

Why in news?

- The UN's nuclear watchdog International Atomic Energy Agency (IAEA) recently initiated investigations on Russia's allegations accusing Ukraine of producing dirty bombs.

Dirty Bomb

- Dirty bomb is a conventional explosive device laced with toxic materials.
- Unlike a nuclear weapon, it does not cause atomic explosion. Rather, it spreads radioactive, biological or chemical wastes after explosion.
- This weapon will not cause an immediate health impact since people in the affected region can escape from being exposed lethal dose of radiation.
- However, economic impact could be severe due to the high costs incurred during the evacuation process.
- Sometimes, the whole city or an urban region would be abandoned if it is hit by a dirty bomb.

IAEA

- Widely known as the world's "Atoms for Peace and Development" organization within the United Nations family, the IAEA is the international centre for cooperation in the nuclear field.
- The IAEA was created in 1957 in response to the deep fears and expectations generated by the discoveries and diverse uses of nuclear technology.
- Headquarter: Vienna, Austria.
- Objective- The Agency works with its Member States and multiple partners worldwide to promote safe, secure and peaceful use of nuclear technologies.
- In 2005, it was awarded the Nobel Peace Prize for their work for a safe and peaceful world.

No Money for Terror Conference

International Relations

Why in news?

- Third edition of No Money for Terror conference held in India Recently

About the conference

- The NMFT started in 2018 as an initiative of the French government** which had, in 1989, laid the foundation of the Financial Action Task Force (FATF), the international body at the forefront of combating money laundering and terrorist financing.
- Just like the FATF, which earlier focused only on money laundering but expanded to include terrorist financing after the 9/11 attacks, the continuing activities of the Islamic State and Al Qaeda, despite territorial defeats in Syria-Iraq and Afghanistan respectively, necessitated the NMFT conference.
- In fact, the 2018 event was titled "International conference on combating the financing of Daesh and Al-Qaeda (Paris, 25-26 April 2018)".
- The agenda for the NMFT 2022 included use of virtual assets and crowd funding platforms by terrorist entities, their use of the dark web, the links between terror financing and legitimate economic activities, and payment intermediaries.
- The major topics discussed during four sessions at the conference are global trends in terrorism and terrorist financing; use of formal and informal channels for terrorism; emerging technologies and terrorist financing; and international cooperation to address challenges in combating terrorist financing.

India's G20 Logo

International Relations

Why in news?

- Prime Minister of India recently unveiled the logo, theme and website of India's G20 presidency.

About the logo

- The logo bears a lotus and the message of 'Vasudhaiva Kutumbakam — One Earth, One Family, One Future'.**
- Elaborating, the Prime Minister said that the **logo reflects our idea of Vasudhaiva Kutumbakam (the whole earth is a family), because of which India has always believed in global harmony.**

- He also said that the lotus flower symbolises our Puranic heritage, our aastha (belief) and boddhikta (intellectualism).
- **India will assume the presidency of the powerful G20 grouping from the current chair, Indonesia**, on December 1, and hold the post for a year.
- The **G20 Leaders' Summit** at the level of Heads of State/Government is scheduled to be held on September 9 and 10, 2023 in New Delhi.
- During the course of its G20 Presidency, India will be holding about 200 meetings in 32 different sectors in multiple locations across India.
- **The G20 Summit to be held next year, would be one of the highest profile international gatherings to be hosted by India.**
- The presidency of the G20 rotates every year among members, and the country holding the presidency, together with the previous and **next presidency-holder, forms the 'Troika' to ensure continuity of the G20 agenda.**
- **During India's presidency, India, Indonesia and Brazil will form the troika. This would be the first time when the troika would consist of three developing countries and emerging economies.**



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G20

- **G20 is the premier forum for international economic cooperation** representing around **85 per cent of the global GDP, over 75 per cent of the global trade**, and about two-thirds of the world population.
- It was formed in 1999 in the backdrop of the financial crisis of the late 1990s that hit East Asia and Southeast Asia in particular.
- Its aim was to secure global financial stability by involving middle-income countries.
- **Its prominent members are:** Australia, Brazil, China, France, Germany, India, Japan, Republic of Korea, Russia, Saudi Arabia, South Africa, Turkey, the UK, the US, and the EU. Spain is invited as a permanent guest.
- **The G20 has no permanent secretariat.**
- The agenda and work are coordinated by representatives of the G20 countries, known as 'Sherpas', who work together with the finance ministers and governors of the central banks.
- On the advice of the G7 Finance Ministers, the G20 Finance Ministers and Central Bank Governors began holding meetings to discuss the response to the global financial crisis that occurred.
- Since 1999, an annual meeting of finance ministers has taken place.
- **The first G20 Summit took place in 2008 in Washington DC, US.**
- In addition to Summits, the Sherpa meetings (that help in negotiations and building consensus), and other events are also organised throughout the year. Each year, the presidency invites guest countries.

East Asia Summit

International Relations

Why in news?

- Vice President of India has recently addressed the East Asia Summit.

About the East Asia Summit (EAS)

- The EAS is an ASEAN initiative and refers to the annual Meeting of Heads of States/Governments of these countries, where they are able to discuss common concerns and interests.
- **Beginning in 2005**, 16 participating countries comprised this grouping, with their **first meeting in Kuala Lumpur, Malaysia.**
- These members were the **10 ASEAN countries, Australia, China, India, Japan, New Zealand**, and the Republic of Korea.
- ASEAN's 10 member countries are Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.
- The United States and the Russian Federation joined at the 6th East Asia Summit in 2011.
- **Its creation was based on the idea of enhancing cooperation among East Asian countries and those in the neighbouring regions.**
- **Six priority areas of cooperation** were identified – environment and energy, education, finance, global health issues and pandemic diseases, natural disaster management, and ASEAN Connectivity.



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Why in news?

- In a reference to China's Belt and Road Initiative (BRI), at a virtual meeting of the Shanghai Cooperation Organisation (SCO), India's External Affairs Minister recently reiterated that connectivity projects (China-Pakistan Economic Corridor (CPEC)) should respect sovereignty and territorial integrity.

CPEC

- Launched in 2015, the CPEC is the flagship project of the multi-billion-dollar Belt and Road Initiative (BRI), a pet project of Chinese President Xi Jinping, aimed at enhancing Beijing's influence around the world through China-funded infrastructure projects.
- The 3,000 km-long China-Pakistan Economic Corridor (CPEC) consists of highways, railways, and pipelines.
- CPEC eventually aims at linking the city of Gwadar in South Western Pakistan to China's North Western region Xinjiang through a vast network of highways and railways.
- The proposed project will be financed by heavily-subsidised loans that will be disbursed to the Government of Pakistan by Chinese banks.

Significance

- The agreement is aimed at boosting Chinese investment in Pakistan as well as transferring Chinese industrial capacity.
- The framework will promote industrialisation and development of economic zones, and initiate, plan, execute, and monitor projects, both in the public as well as the private sectors.
- The corridor links Xinjiang with Gwadar and also passes through Pakistan-occupied Kashmir (PoK) where China is investing in a number of projects.
- CPEC's early-harvest projects had transformed Pakistan's economic landscape, thus laying a solid foundation for sustainable economic growth.

Concerns

- As the project passes through Pakistan-occupied Kashmir (PoK) it violates universally accepted international norms, principles of openness, transparency and equality
- Pakistan and China, during a recent CPEC Joint Working Group (JWG) meeting had decided to extend CPEC to interested third countries (most probably Afghanistan).
- A China that is more accepted and integrated into the rest of the global economy will have a stronger voice in the UN and with individual nations, which may be bad news for India's bid for a permanent seat on the UN Security Council.
- Given the hype surrounding the benefits that the CPEC will bring to the region, several experts argue that India must engage with China and Pakistan creatively.

Why in news?

- The year 2022 has been declared as the ASEAN-India Friendship year, as ASEAN and India commemorate 30 years of partnership.

India- ASEAN

- The year 2022 has been declared as the ASEAN-India Friendship year, as ASEAN and India commemorate 30 years of partnership.
- A series of events has been planned to celebrate the occasion throughout the year.
- As a part of this programme, Indian media delegation is on a visit to Singapore and Cambodia under the ASEAN-INDIA Media exchange programme from 8th November to 13th November.

ASEAN

- The Association of Southeast Asian Nations is a regional organization which was established to promote political and social stability amid rising tensions among the Asia-Pacific's post-colonial states.
- The motto of ASEAN is "One Vision, One Identity, One Community".
- 8th August is observed as ASEAN Day.
- ASEAN Secretariat – Indonesia, Jakarta.

Why in news?

- The ASEAN members agreed in principle to admit East Timor as the 11th member of the bloc.

About East Timor

- Timor Leste or East Timor is a half-island nation in the eastern Lesser Sunda Islands.
- It is situated at the southern extreme of the Malay Archipelago.
- It occupies the eastern half of the Island of Timor.
- It is bounded by the Timor Sea to the southeast, the Wetar Strait to the north, the Ombai Strait to the northwest and the western Timor (part of Indonesian territory) to southwest.
- East Timor that was previously part of Indonesian territory. Indonesia occupied the island nation in 1976.
- It was recognized by the United Nations in 2002. This makes it the youngest democracy in Asia.
- East Timor was granted observer status at ASEAN meetings, including summit plenaries, until it is formally inducted into the regional bloc.

Why in news?

- India and Sweden hosted the LeadIT Summit recently on the side-lines of COP27.

About the Summit

- The LeadIT (Leadership for Industry Transition) initiative focuses on low carbon transition of the hard to abate industrial sector.
- The Leadership Group for Industry Transition (LeadIT) gathers countries and companies that are committed to action to achieve the Paris Agreement.
- It was launched by the governments of Sweden and India at the UN Climate Action Summit in September 2019 and is supported by the World Economic Forum.
- LeadIT members subscribe to the notion that energy-intensive industry can and must progress on low- carbon pathways, aiming to achieve net-zero carbon emissions.

Why in news?

- Recently, the Prime Minister in his address to the Indian diaspora in Bali on the sidelines of the G20 summit mentioned the annual Baliyatra on the banks of the Mahanadi in Cuttack that commemorates age-old links between ancient Kalinga and Southeast Asia.

About Baliyatra

- Baliyatra, literally 'voyage to Bali' is one of the country's largest open-air fares.
- Baliyatra is a week-long event which begins on Kartik Purnima (full moon night in the month of Kartik)
- It is organised every year to commemorate the 2,000-year-old maritime and cultural links between ancient Kalinga (today's Odisha) and Bali and other South and Southeast Asian regions like Java, Sumatra, Borneo, Burma (Myanmar) and Ceylon (Sri Lanka).
- According to historians, popular items of trade between Kalinga and Southeast Asia included pepper, cinnamon, cardamom, silk, camphor, gold, and jewellery.
- The Bali Yatra celebrates the ingenuity and skill of those expert sailors who made Kalinga one of the most prosperous empires of its time.

Kalinga- Bali

- The Kalinga Empire (present-day Odisha) is known for its glorious maritime history. Due to the geographical location of Kalinga, this area saw the growth of ports as early as the 4th and the 5th century BC.
- Some of the famous ports, Tamralipti, Manikpatna, Chelitalo, Palur and Pithunda allowed India to connect with other countries via the sea. Soon, the Kalingas had trade links with Srilanka, Java, Borneo, Sumatra, Bali and Burma.

- Bali formed a part of the four islands that were collectively called the Suvarnadvipa, today known as Indonesia.
- The Kalingas constructed large boats called the 'Boitas' and with the help of these, they traded with the Indonesian islands.
- The Bay of Bengal was once known as the Kalinga Sea as it was thronged by these ships.
- The dominance of the Kalingas over the sea routes can be understood from the fact that Kalidasa in his Raghuvamsa referred to the King of Kalinga as **'The Lord of the Sea'**.
- The Kalingas frequently traded with the island of Bali. The trade-in commodities also led to the interchange of ideas and beliefs.
- Odia merchants formed settlements in Bali and influenced its culture and ethics which led to the growth of Hinduism in the region.

Keen Sword

International Relations

Why in news?

- Japan and the United States began a major joint military exercise in southern Japan as the allies aim to step up readiness in the face of China's increasing assertiveness and North Korea's intensifying missile launches.

About the Exercise

- Exercise Keen Sword is a joint and bilateral field training exercise between the US military and the Japan Self-Defence Force.
- It is held once in two years to boost the preparedness and interoperability between the military personnel of Japan and the United States.
- This biennial exercise has been held since 1986.
- This exercise provides opportunities for the US military and the JSDF to train together across various mission areas in realistic scenarios.
- Its ultimate goal is to build credible deterrence amid growing Chinese aggression in the region.
- It aims to create comprehensive scenarios to challenge the critical capabilities required to support the security of Japan and the stability of the Indo-Pacific.
- The exercise includes several anti-submarine warfare and surface gunnery events that will help the Pacific partners to improve their joint and advance multilateral tactics.
- It also focuses on responding to ballistic missiles and new threats like operations in space and cyberspace.

Significance

- The exercise comes amid the Chinese military's growing presence near Taiwan, the neighbouring country of Japan.
- Also, the Chinese vessels are continuously trespassing into the Japanese territorial waters close to the Senkaku Islands in the Indo-Pacific.
- The Senkaku Islands are Japanese-controlled, uninhabited islands in the East China Sea. China is currently claiming that these islands are part of its territory.

India launches official website of SCO for 2023 - "For a SECURE SCO"

International Relations

Why in news?

- India has launched the official website of the Shanghai Cooperation Organisation (SCO) as it will host the next SCO summit as a chairman of organisation in 2023.

Theme of SCO

- The theme of the event is "For a SECURE SCO".
- 'S' for security for citizens, 'E' for economic development, 'C' for connectivity in the region, 'U' for unity, 'R' for respect of sovereignty and integrity, and 'E' for environment protection.
- India received the SCO rotating presidency in Samarkand, Uzbekistan. India will hold the presidency of the grouping for a year until September 2023.

About

- SCO is a permanent intergovernmental international organization.

- It's a Eurasian political, economic and military organization aiming to maintain peace, security and stability in the region.
- It was created in 2001.
- The SCO Charter was signed in 2002, and entered into force in 2003.
- Prior to the creation of SCO in 2001, Kazakhstan, China, Kyrgyzstan, Russia and Tajikistan were members of the Shanghai Five.
- Shanghai Five (1996) emerged from a series of border demarcation and demilitarization talks which the four former Soviet republics held with China to ensure stability along the borders.
- Following the accession of Uzbekistan to the organization in 2001, the Shanghai Five was renamed the SCO.
- India and Pakistan became members in 2017.
- On 17th September, 2021, it was announced that Iran would become a full member of the SCO.

Significance

- From a regional perspective, amidst the tensions over the Sino-Indian border and politically unstable neighbourhood, being the first South Asian country host of SCO, how India would project itself would be significant for the region.
- From a geopolitical perspective, New Delhi could be seen renewing its policy towards Central Asia which also implies a change in understanding of the extended territorial neighbourhood. Consequently, the upcoming presidency would be significant for New Delhi's reach toward Central Asian countries.
- The SCO presidency is preceded by India's non-permanent membership in the United Nations Security Council and would be followed by India hosting the G-20 summit. Thus, the tenure will reflect any continuity or change in New Delhi's understanding of multilateralism and its behaviour in international and regional organisations.

Indo-Pacific Regional Dialogue

International Relations

Why in news?

- Indo-Pacific Regional Dialogue (IPRD) 2022 will be held from November 23 to 25 this year.

About IPRD

- The Indo-Pacific Regional Dialogue (IPRD) is the apex international conference organized by the Indian Navy every year.
- The National Maritime Foundation (NMF) is the Indian Navy's knowledge partner and chief organizer of this dialogue.
- The first two editions were held in the years 2018 and 2019 respectively in New Delhi. The 2020 edition of the IPRD was canceled because of the COVID-19 pandemic. The third edition was held in 2021 in virtual mode.
- The aim of this annual dialogue is to assess the opportunities and challenges that emerge within the Indo-Pacific.
- It provides a common platform to discuss topics related to the geopolitical developments that are affecting the maritime domain of the Indo-Pacific.

IPRD 2022

- The IPRD 2022 will be held in New Delhi based on the theme 'Operationalising the Indo-Pacific Oceans Initiative (IPOI)'.
- The concept of IPOI seeks to promote regional, inclusive cooperation based on seven inter-connected pillars – maritime security, maritime ecology, maritime transport, capacity building and resource sharing, and science, technology and academic cooperation.

About NMF

- The National Maritime Foundation (NMF) is India's first maritime think-tank established in 2005 to conduct independent and policy-relevant research on all topics related to the maritime sector.
- Its main mandate is to create maritime awareness amongst India's policymakers, academia, and civil society.



Why in news?

- The on-going conflict between Bangladeshi security forces and the Kuki-Chin National Army (KNA) triggered an influx of refugees from the Kuki-Chin community to the Indian state of Mizoram.

About KNA

- The Kuki-Chin National Army (KNA) is the armed wing of the Kuki-Chin National Front (KNF) – a separatist group that was established in 2008 to create a separate state in Chittagong Hill Tracts (CHT) in Southern Bangladesh.
- The KNF claims that all members of the Bawm, Pungkhua, Lushai, Khumi, Mro, and Khyang ethnic groups are part of the greater Kuki-Chin race.
- Also known as the Bawm Party, this group is having close relationships with rebel groups in Northeast India and Myanmar.

About Issue

- The Kuki-Chin National Front (KNF) is an ethnic separatist organisation that claims to represent the interests of the Kuki-Chin-Mizo communities living in the area.
- The KNF emerged around 2008, with the demand of a separate state in the Chittagong Hill Tracts.
- The Kuki-Chin National Army (KNA), the armed wing of the KNF, is fighting soldiers of the Bangladesh Rapid Action Battalion (RAB) in the CHT.
- The KNF claims all members of the Bawm, Pungkhua, Lushai, Khumi, Mro, and Khyang ethnic groups belong to a greater Kuki-Chin race.
- **Deal** - The amir of the Jama'atul Ansar, Md Anisur Rahman alias Mahmud and the KNF chief Nathan Bom had "struck a three-year agreement" at the beginning of 2021.
- As per the deal, the KNF was providing shelter, training and other support to the militants.
- In return, the militant outfit was giving the KNF Bangladeshi Taka 3 lakh per month and the expenditure for food".
- The Zo Reunification Organisation (ZORO) had told that the Bangladesh Army has entered into a secret pact with Myanmar-based Arakan Army to launch joint operations against KNA.

Refugees in Mizoram

- From Bangladesh - The Chittagong Hill Tracts (CHT) is an impoverished hilly, forested area that is found in the Khagrachari, Rangamati, and Bandarban districts of Bangladesh.
- It borders Mizoram to the east, Tripura to the north, and Myanmar to the south and southeast.
- A significant portion of the population is tribal, and culturally and ethnically different from the majority Muslim Bangladeshis.
- The tribal population of the CHT has ethnic links with tribal populations in the adjacent areas of India, mainly in Mizoram.
- From Mizoram - Mizoram is already hosting about 30,000 refugees who have been fleeing fighting in Myanmar's Chin state since July-August 2021.
- A pro-democracy civilian resistance group called the Chin Defence Force has been fighting the forces of the junta ever since the military coup of February 2021.

First China-Indian Ocean Region Forum**International Relations****Why In news?**

- China organized the first high-level China-Indian Ocean Region Forum on Development Cooperation, with 19 countries from the region except for India.

About the meeting

- Theme: Shared Development: Theory and Practice from the Perspective of the Blue Economy.
- Participating Countries- Indonesia, Pakistan, Myanmar, Sri Lanka, Bangladesh, Maldives, Nepal, Afghanistan, Iran, Oman, South Africa, Kenya, Mozambique, Tanzania, Seychelles, Madagascar, Mauritius, Djibouti, Australia and representatives of 3 international organisations were present.



- India was reportedly not invited.
- China proposed to establish a marine disaster prevention and mitigation cooperation mechanism between China and countries in the Indian Ocean region.
- China expressed its willingness to provide necessary financial, material, and technical support to countries in need.

About IORA

- It was established in 1997 and is a regional forum that seeks to build and expand understanding and mutually beneficial cooperation through a consensus-based, evolutionary and non-intrusive approach.
- IORA has 23 member states and 9 Dialogue Partners.
- Members: Australia, Bangladesh, the Comoros, France, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Maldives, Mauritius, Mozambique, Oman, Seychelles, Singapore, Somalia, South Africa, Sri Lanka, Tanzania, Thailand, the United Arab Emirates and Yemen.
- China is a dialogue partner in the IORA.
- The IORA Secretariat is based in Mauritius.

First G20 Sherpa Meeting in India

International Relations

Why In news?

- Udaipur is gearing up to host the first G20 Sherpa Meeting in India from 4 to 7 December. The meeting is aimed at fostering growth and building bonds amongst the member nations.

G20 Sherpa meeting

- The Sherpa Meeting of the G20 Summit is a preliminary meeting of the government representatives before the main G20 Summit.
- Here the representatives of the member nations hold discussions to firm up possible agreements.
- The final decisions are taken at the G20 summit by the Heads of States.
- Ahead of the main G20 Summit, the Sherpas meeting ensures that the time and resources required at the time of negotiations of the larger heads of state at the final summit are minimized.
- The G-20 Sherpa meeting will be presided by the Indian Sherpa Amitabh Kant.

G20 & India's Presidency

- Group of 20 or G-20 is a multilateral organisation of 19 countries and the European Union was set up in 1999.
- India has been a member of the G20 since its inception in 1999.
- India will be holding the G20 Presidency from 1 December 2022 and will convene the G20 Leaders' Summit in 2023 for the first time.
- India as a host nation will set the agenda of the G-20 summit meeting to be held in September 2023 in New Delhi.



Why in news?

- A recent call for startup applications for registration on the **Mentorship, Advisory, Assistance, Resilience, and Growth (MAARG) portal** has been issued by the **Department for Promotion of Industry and Internal Trade (DPIIT)**, Ministry of Commerce and Industry.

About MAARG

- The National Mentorship Platform** by Startup India is the MAARG platform.
- It is a **one-stop platform** that enables mentorship for entrepreneurs in a variety of industries, roles, stages, locations, and backgrounds.

Key characteristics:

- programs for ecosystem enablers to receive mentoring
- responsive user interface
- Gratitude for valuable mentors
- options for voice and video calls

Three steps make to the operationalization of the MAARG Portal:

- Initially, mentor onboarding
- 400+ professional mentors from various fields have been successfully launched and implemented.
- Phase II:** Onboarding a startup
- From November 14, 2022, [DPIIT](#) will begin onboarding startups onto the MAARG Portal.
- Phase III:** Establishment of the MAARG Portal and Mentor Matching
- Final launch where mentors and businesses will be matched Under Phase II, DPIIT has started the onboarding process for startups.

Signifies:

- Through **Artificial Intelligence (AI)** based matchmaking, startups may now efficiently interact with academics, industry experts, successful founders, seasoned investors, and other specialists from around the world to receive tailored advice on growth and strategy.

Why in news?

- Recently, a **phenomenon called "coronal holes"** was spotted on the sun by NASA.

About

- Coronal holes are areas in the **Sun's atmosphere that appear dark in X-ray and ultraviolet images of the Sun.**
- The plasma (electrified gas) in these regions of the Sun's corona (it's upper atmosphere) is cooler and denser than in other parts of the corona.**
- They appear dark because plasma particles can escape along the magnetic field from the solar surface into interplanetary space, leaving a 'hole' in the corona.
- The escaping particles form high-speed solar wind streams that can eventually hit Earth, causing geomagnetic storms.
- The **appearance and location of these holes on the Sun vary in dependence on solar activity**, giving us also important information on the long-term evolution of the Sun.
- In **Coronal Holes, the magnetic field is open to interplanetary space, sending solar material out in a high-speed stream of solar wind.** Coronal holes can last between a few weeks to months.
- 'Coronal holes' are important to understanding the space environment around the earth through which our technology and astronauts travel.

Genetically modified Cotton gets a nod for environment release by GEAC

Science & Technology

Why in news?

- After the clearance for GM-Mustard crops for field trials, the Genetic Engineering Appraisal Committee (GEAC) is going to recommend an 'environmental release' of genetically modified (GM) cotton.

About BG-II RRF

- Bollgard II Roundup Ready Flex (BG-II RRF) is a transgenic cotton having three alien genes.
- Two of the alien genes – cry1Ac and cry2Ab – were isolated from a soil bacterium *Bacillus thuringiensis*. These genes have proteins that are harmful for American bollworm, spotted bollworm and tobacco caterpillar insect pests.
- The third gene – cp4-epsps – was obtained from another soil bacterium *Agrobacterium tumefaciens*. Its inclusion makes the cotton crop "tolerant" to the harmful herbicide glyphosate, which does not distinguish between the crops and weeds.
- The BG-II RRF cotton was developed by the American company Monsanto, which was acquired by Bayer in 2018.
- It underwent biosafety research and field trials in 2012-13. The results of the trials were submitted to the GEAC in 2013. However, the American company withdrew the application seeking environmental clearance for the crop due to regulatory uncertainties and lack of government decisions.

Mycobacterium Leprae

Science & Technology

Why in news?

- A group of researchers have found that armadillo livers grew substantially when infected with *Mycobacterium leprae*.

About Mycobacterium leprae

- Mycobacterium leprae*, is one of the two species of bacteria that **cause Hansen's disease, a chronic but curable infectious disease** that damages the peripheral nerves and targets the skin, eyes, nose, and muscles.
- It is an acid-fast, Gram-positive, rod shaped bacterium and an obligate intracellular parasite, which means, unlike its relative *Mycobacterium tuberculosis*, **it cannot be grown in cell-free laboratory media**.
- This is likely due to gene deletion and decay that the genome of the species has experienced via reductive evolution, which has caused the bacterium to depend heavily on its host for nutrients and metabolic intermediates.
- It has a **narrow host range and apart from humans, the only other natural hosts are nine-banded armadillo and red squirrels**.
- The bacteria infect mainly macrophages and Schwann cells, and are typically found congregated as a palisade.

Key findings-

- The **pathogen was able to maintain liver function and keep its exquisite architecture intact**, giving rise to something that looked like stem cells.
- The researchers documented the in-vitro discovery of *Mycobacterium leprae*'s ability** to reprogram adult Schwann cells, the bacteria's preferred host niche in the peripheral nervous system, "to a stage of progenitor/stem-like cells".
- Armadillos came into the picture because they are among the few animals that leprosy bacteria infect.
- The bacteria was performing something akin to 'biological alchemy'** — a bacterial pathogen was changing the biology of infected cells to become more 'valuable' such that it can promote the growth of a vital organ like the liver in living animals.
- No currently available cell therapy can rival this mysterious mechanism**, which researchers describe as a natural process stemming from evolutionary training.
- The leprosy bacteria need functional cells to function within it because of its dependency on the host to survive and replicate.
- The bacteria have evolved and perfected the system to grow the tissues for them to live.
- Several researchers remain sceptical about how the leprosy bacteria will impact a human liver, while others point out that a longer-term study is needed to gauge any adverse effects.
- Since the bacteria's functions do not involve tumour formation or any adverse effects like fibrosis, it appears safe for now.
- Now that this ability has been identified, the next step is to understand its mechanism.

LOFTID Mission

Science & Technology

Why in news?

- NASA completed the technology demonstration of its **Low-Earth Orbit Flight Test of an Inflatable Decelerator (LOFTID) mission**.

About LOFTID mission

- It is a NASA mission to test inflatable reentry systems. **It is the first such test of an inflatable decelerator from Earth-orbital speed.**
- LOFTID was launched on an Atlas V 401 in November 2022 as a secondary payload, along with the JPSS-2 weather satellite.
- NASA's LOFTID, **is demonstrating a cross-cutting aeroshell a type of heat shield for atmospheric re-entry.**
- For destinations with an atmosphere, one of the challenges NASA faces is how to deliver heavy payloads (experiments, equipment, and people) because current rigid aeroshells are constrained by a rocket's shroud size.
- One answer is an inflatable aeroshell that can be deployed to a scale much larger than the shroud.
- This technology enables a variety of proposed NASA missions to destinations such as Mars, Venus, Titan as well as return to Earth.
- The "inflatable aerodynamic decelerator," or "aeroshell" technology could one day help land humans on Mars.

Curcumin Compound

Science & Technology

Why in News?

- In a major breakthrough in creating immunity in cattle against infectious diseases including mastitis, researchers have successfully validated the immunomodulation ability of a natural phytochemical compound with curcumin as the active ingredient.

Curcumin

- It is a yellow pigment found primarily in turmeric. It is a polyphenol with anti-inflammatory properties and the ability to increase the amount of antioxidants that the body produces.
- Research revealed that Curcumin offers immunity in dairy cattle against infectious diseases including mastitis by increasing complementary protein, Interferon, Immunoglobulin (IgM), lymphocytes and monocytes.
- The compound will create appropriate immunity and facilitate increased milk production by 10 percent.

Bovine mastitis

- It is a condition with the persistent and inflammatory reaction of the udder tissue due to either physical trauma/injury or infections caused by various microorganisms including viruses, mycoplasma, fungus and bacteria.
- Symptoms: inflammation of the udder into a red-hard mass with pain, milk yield totally stops or is severely restricted, milk produced contains blood clots and has a foul smell.
- Treatment: No vaccination is available against mastitis. Anti-inflammatory and antibiotic treatment is used as applicable.

Cordy Gold Nanoparticles (Cor-AuNPs)

Science & Technology

Why in news?

- Cor-AuNPs, the outcome of a collaborative experiment by scientists from four Indian institutions, has earned an international patent from Germany.

About Cor-AuNPs-

- These nanoparticles, derived from the synthesis of the extracts of Cordyceps militaris and gold salts, could make drug delivery in the human body faster and surer.**
- Cordyceps militaris **is a high value parasitic fungus**, lab-grown at the Department of Biotechnology's Technology Incubation Centre (TIC) in Bodoland University, one of the collaborators of the patented research work.
- Gold salts are ionic chemical compounds of gold generally used in medicine.**
- Penetration in the cells is more when the drug particles are smaller. **Cordyceps militaris, called super mushroom because of its tremendous medicinal properties**, adds bioactive components to the synthesis of gold nanoparticles for better penetration.

- The collaborative study has validated its [the super mushroom's] medicinal and nutraceutical properties... **Biosynthesised nanogold particles indicate a new application of nanoparticles** in the development of therapeutic drugs which can be delivered as ointments, tablets, capsules, and in other forms.

Photonic Crystals

Science & Technology

Why in news?

- Graphene-stabilised tunable photonic crystal recently discovered by researchers has potential applications in making more durable and better reflective displays and laser devices.

About Photonic crystals

- Photonic crystals are optical nanostructures in which the refractive index changes periodically.
- The Refractive index, is the measure of the bending of a ray of light when passing from one medium into another.
- This affects the propagation of light in the same way that the structure of natural crystals gives rise to X-ray diffraction and that the atomic lattices (crystal structure) of semiconductors affect their conductivity of electrons.
 - Photonic crystals occur in nature in the form of structural colouration and animal reflectors. Examples found in nature include opal, butterfly wings, peacock feathers,, exhibiting distinct iridescent colours.

Significance

- Photonic crystals promise to be useful in a range of applications ranging from reflection coatings to optical computers when artificially produced or engineered in laboratories.
- They enable the PCs to exhibit structural colours in the visible spectral regime.
- Researchers have also been on the constant lookout for tuning the properties in-situ post-fabrication.
- The development of advanced photonic materials and devices using Liquid Crystals (LC) that exhibit self-organization, phase transitions, and molecular orientation behaviours in response to external stimuli is attracting significant interest.

Lithium-ion Batteries

Science & Technology

Why in news?

- Indian researchers have discovered a new anode material, which could be helpful in ensuring the life and fast charging of lithium-ion batteries (LIBs).
- This discovery could help charge battery-based devices and electric vehicles (EVs) at ultra-fast speeds.

About the discovery

- It is a two-dimensional (2D) anode material, developed using Nano sheets derived from Titanium Diboride (TiB₂).
- This anode had an ultra-fast charging capacity with a considerable discharge capacity at high-capacity retention. This innovation holds the potential to make India a leader in renewable energy.
- Batteries are comprised of 3 essential components - The Anode is the negative or reducing electrode that releases electrons to the external circuit and oxidizes during an electrochemical reaction
- The Cathode is the positive or oxidizing electrode that acquires electrons from the external circuit and is reduced during the electrochemical reaction.
- The Electrolyte is the medium that provides the ion transport mechanism between the cathode and anode of a cell.

India's Biggest Hyperscale Data Centre

Science & Technology

Why in news?

- North India's first hyper-scale data centre Yotta Yotta D1 was established recently.

Data Centre

- Yotta D1, built at a cost of Rs 5,000 crore, is the country's biggest and UP's first data centre.
- It is spread over an area of 3 lakh square feet at the upcoming Data Centre Park in Greater Noida, Uttar Pradesh.

Significance

- The data centre will increase data storage capacity of the country, which until now stood at 2% only despite the fact that 20% of the world's data is consumed by Indians.



- It is also expected to increase Gross State Domestic Product (GSDP) significantly while creating new avenues for investment and huge employment opportunities.
- Yotta D1 features Internet peering exchanges and direct fibre connectivity to and from global cloud operators, making it extremely useful for global connectivity.
- Yotta D-1 will be the first pillar of North India's 5G revolution.
- India's data analytics industry is estimated to reach more than \$16 billion by 2025. Therefore, paying special attention to promoting investment in data centre infrastructure is a step in the right direction.
- The presence of a data park would allow big companies like Google and Twitter to have a data centre for hosting, processing and storing data.

NIC Data centres

- The National Informatics Centre (NIC) has set up state-of-the-art National Data Centres (NDCs) at NIC Headquarters in Delhi, Pune, Hyderabad and Bhubaneswar and 37 small Data Centres at various State Capitals.
- The first Data Centre was launched in Hyderabad in 2008.
- These NDCs form the core of e-Governance Infrastructure in India by providing services to various e-Governance initiatives undertaken by the Government of India.
- The foundation stone of the first NDC for North Eastern Region (NEDC) was laid by in Guwahati, Assam in February 2021.

International Counter Ransomware Initiative (CRI)

Science & Technology

Why in news?

- International Counter Ransomware Initiative (CRI), will enhance "collective resilience" to ransomware, disrupt attacks, and counter illicit finance so as to underpin the ransomware ecosystem.

About CRI

- Ransomware is malware designed to deny a user or organization access to files on their computer.
- CRI will establish an international counter-ransomware task force led by Australia to "coordinate resilience, disruption and counter illicit finance activities".
- India will establish a dedicated counter ransomware platform, Malwarekosh, "to support, analyse, share and collaborate on counter ransomware activities".
- It is a grouping of 36 countries, including India, and the European Union.

Global Climate Observing System(GCOS)

Science & Technology

- The declaration released by the Global Climate Observing System conference has recently stated that Sustainable and long-term funding is essential to ensure the continuity and expansion of observations.

About Global Climate Observing System

- The GCOS is co-sponsored by the World Meteorological Organization (WMO), the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC-UNESCO), the United Nations Environment Programme (UNEP), and the International Science Council (ISC).
- It regularly assesses the status of global climate observations of the atmosphere, land and ocean and produces guidance for its improvement.
- GCOS expert panels maintain definitions of Essential Climate Variables (ECVs) which are required to systematically observe Earth's changing climate.
- The observations supported by GCOS contribute to solving challenges in climate research and also underpin climate services and adaptation measures.

About the conference

- GCOS conference was hosted by Exploitation of Meteorological Satellites (EUMETSAT).
- Operational monitoring of the climate and detection of global climatic changes are the fundamental objectives of EUMETSAT.
- According to State of Global Observation Systems, 2021, the status of climate observation systems has not improved much in Africa, South America and Southeast Asia since 2015.
- GCOS Implementation Plan 2022, released by the WMO, also identified gaps in earth observations and areas that



require improvement. The plan will be presented at COP27.

- The Global Climate Observing System programme (GCOS) has published The 2022 GCOS Implementation Plan and the 2022 ECV Requirements.
- The GCOS Implementation Plan (GCOS-244) is a response to the findings of the 2021 GCOS Status Report, implications arising from the IPCC 6th assessment report and recent scientific studies on the climate cycles.
- The publication provides recommendations for a sustained and fit for purpose Global Climate Observing System.

The European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)

- It is an intergovernmental organisation created through an international convention agreed by a current total of 30 European Member States.
- EUMETSAT's primary objective is to establish, maintain and exploit European systems of operational meteorological satellites.
- It is responsible for the launch and operation of the satellites and for delivering satellite data to end-users as well as contributing to the operational monitoring of climate and the detection of global climate changes.
- The activities of EUMETSAT contribute to a global meteorological satellite observing system coordinated with other space-faring nations.

Astronomers discover an Asteroid that could Destroy Planets

Science & Technology

Why in news?

- A group of scientists has found three enormous near-Earth asteroids that were concealing from the Sun's light.
- One of them, **2022 AP7**, is "possibly harmful" to Earth and is thought to be the greatest planet-killer-sized asteroid to have been discovered in a decade.

About 2022 AP7

- The three asteroids are part of a group that is located within the orbits of Earth and Venus. They are difficult to see, though, because the Sun's brightness prevents telescopic views of them.
- The scientists only observed during twilight hours, a brief but ideal 10-minute window each night, because they were obscured by the Sun's brightness.
- At the Cerro Tololo Inter-American Observatory in Chile, they made use of a Dark Energy Camera.
- They were able to photograph vast areas of the sky with the use of a high-tech camera that was part of the NOIRLAB initiative of the US National Science Foundation (NSF).
- The camera was first created to perform a **Dark Energy Survey**, which was carried out between 2013 and 2019 by the US Department of Energy and the NSF.
- The asteroids are blurred and deformed by the Earth's atmosphere because they are near the horizon, which presented the astronomers with a further challenge in addition to dealing with the Sun's glare.

Asteroids

- Asteroids are small, airless rocky worlds revolving around the sun that are too small to be called planets. They are also known as planetoids or minor planets.
- In total, the mass of all the asteroids is less than that of Earth's moon. But despite their size, asteroids can be dangerous. Many have hit Earth in the past, and more will crash into our planet in the future.

First Vedic Clock

Science & Technology

Why in news?

- Madhya Pradesh education minister Mohan Yadav laid the foundation stone of the world's first Vedic Clock at the 300-year-old Jiwaji Observatory in Ujjain, Madhya Pradesh.
- The Jiwaji observatory was constructed by Maharaja Sawai Raja Jaisingh of Jaipur in 1719.

About Vedic Clock

- This clock will be fixed on the basis of the principles of Vedic time calculation. Changes in the sunrise and sunset at different times in different places in the country and the world will also be synchronised.



- The application of the Vedic Clock will be for Vikram Panchang, Vikram Samvat month, planetary position, yoga, Bhadra position, moon position, festival, auspicious time, constellation, birth anniversary, fast, festival, Choghadiya, solar eclipse, lunar eclipse, major holidays, celestial planets, constellations and comets etc.
- The citizens will be able to access the Vedic clock through their smartphone, computers, TVs and other electronic gadgets. The vedic clock background will feature Jyotirlingas, Navagrah etc.

Vikram-S

Science & Technology

Why in news?

- Vikram-S, India's first privately developed launch vehicle, is set to take off from the Indian Space Research Organization's (ISRO) launchpad in Sriharikota as part of Mission Prarambh (the beginning).



Mission Prarambh

- It is a mission under which Vikram-S – India's first privately developed launch vehicle by Hyderabad-based Skyroot Aerospace will carry 3 customer satellites (2 Indian and 1 foreign) in a sub-orbital flight.
- Suborbital flights travel at a slower rate than orbital velocity – velocity at which a body revolves around the other body. They are fast enough to reach outer space but not fast enough to remain in orbit around the Earth.
- A tribute to Vikram Sarabhai – founder of the Indian space programme, the launch vehicles have been crafted specially for the small satellite (between 5-1000 kg) market.

Vikram S

- Named after Vikram Sarabhai, the Father of the Indian Space Programme, Vikram S is a small-lift launch vehicle that will "signal the beginning of a new era for the space industry."
- The Vikram-S rocket is a single-stage sub-orbital launch vehicle which would carry three customer payloads and help test and validate the majority of the technologies in the Vikram series of space launch vehicles.
- The 'Vikram' series has three rockets that are being developed to launch small satellites.
- These will help to support communication services such as broadband internet, GPS, IoT from space and earth imaging.
- The Vikram series (I, II, III) comprises solid-state rockets that are built on upgradeable architecture with carbon composite and 3D-printed motors and can be assembled and launched in less than 72 hours.
- They can carry satellites weighing up to 815kgs to the low Earth orbit and the sun-synchronous polar orbits (SSPOs).
- Vikram I will be the first of the series launch that includes three solid fuel stages, plus a liquid-fueled kick stage.
- It will be able to carry lighter satellites, weighing up to 480 kg to low-inclination orbits. Vikram I will have two Indian and one foreign payload.

Indian Biological Data Center (IBDC)

Science & Technology

Why in news?

- Union Minister of State (Independent Charge) Ministry of Science and Technology; Dr Jitendra Singh dedicated to the nation India's first national repository for life science data-'Indian Biological Data Center' (IBDC) at Faridabad, Haryana.

About IBDC

- Supported by the Department of Biotechnology (DBT), it has been established at Regional Centre of Biotechnology (RCB), Faridabad with a data 'Disaster Recovery' site at National Informatics Centre (NIC), Bhubaneswar.
- It has a data storage capacity of about 4 petabytes and houses the 'Brahm' High Performance Computing (HPC) facility.
- The computational infrastructure at IBDC is also made available for researchers interested in performing computational-intensive analysis.
- IBDC is being developed in a modular fashion wherein different sections would typically deal with particular type/s of life science data.



NASA completes LOFTID Technology

Science & Technology

Why in news?

- NASA completed the technology demonstration of its Low-Earth Orbit Flight Test of an Inflatable Decelerator (LOFTID) mission.

LOFTID Technology

- The cone-shaped structure will have an inflatable structure that is capable of holding its shape against drag forces. It will also have a protective flexible thermal protection system that will protect it from the heat generated during re-entry.
- When a spacecraft or anything else enters a planet's atmosphere, drag acts upon the body and slows it down, converting kinetic energy into heat.
- Bring massive objects back from Earth's orbit, like items from the International Space Station.
- Used for bringing back rocket assets after they are launched
- Help land humans on Mars



Moon Mission Artemis I

Science & Technology

Why in news?

- National Aeronautics and Space Administration (NASA) has successfully launched its unmanned Moon mission Artemis I on 16th November 2022.
- After multiple delays caused by technological failures and natural disasters spread across two months, the Space Launch System (SLS) rocket has been lifted off from the Kennedy Space Centre in Cape Canaveral, Florida.

Artemis I

- Artemis I is an uncrewed mission of NASA.
- Named after the sister of Apollo in Greek mythology, it is NASA's successor to the Apollo lunar missions from fifty years ago.
- It will test the agency's Space Launch System (SLS) rocket and Orion crew capsule.
- The SLS is the largest new vertical launch system NASA has created since the Saturn V rockets used in the 1960s and 1970s.
- Artemis I is the first in a series of increasingly complex missions to build a long-term human presence at the Moon for decades to come.
- The primary goals for Artemis I are to demonstrate Orion's systems in a spaceflight environment and ensure a safe re-entry, descent, splashdown, and recovery prior to the first flight with crew on Artemis II.
- It is only a lunar Orbiter mission even though, unlike most Orbiter missions, it has a return-to-Earth target.



Hydrogen Valleys

Science & Technology

Why in news?

- The DST under the Clean Hydrogen Mission of "Mission Innovation" has set in motion the process of identifying and setting up at least 3 Hydrogen Valleys by 2030.

Hydrogen Valleys

- A "Hydrogen Valley" is a geographical area – a city, a region, an island or an industrial cluster – where several hydrogen applications are combined together into an integrated hydrogen ecosystem that consumes a significant amount of hydrogen, improving the economics behind the project.
- Mission Innovation (MI) is a global initiative of 23 countries and the European Commission (on behalf of the European Union) catalysing a decade of action and investment in research, development and demonstration to make clean energy affordable, attractive and accessible for all. This will accelerate progress towards the Paris Agreement goals and pathways to net zero.



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National Hydrogen Mission

- The Union Budget for 2021-22 has announced a National Hydrogen Energy Mission (NHM) that will draw up a road map for using hydrogen as an energy source. The initiative has the potential of transforming transportation.
- NHM initiative will capitalise on one of the most abundant elements on earth (Hydrogen) for a cleaner alternative fuel option.
- It will have a specific strategy for the short term (4 years) and broad strokes principles for the long term (10 years and beyond).
- **Aim:** It aims to develop India into a global hub for manufacturing hydrogen and fuel cell technologies across the value chain.
- India is a part of the 'Hydrogen Valley Platform' that looks to create an integrated hydrogen ecosystem covering production, storage, distribution and end-use.

FakeCatcher

Science & Technology

Why in news?

- American technology company Intel recently unveiled the FakeCatcher, its deepfake detection platform.

About FakeCatcher

- It is the world's first real-time deepfake detector, which can detect fake videos in milliseconds with 96% accuracy rate.
- Deepfake is essentially a video in which a person's face or body has been digitally altered so that they appear to be someone else.
- Deception due to deepfakes can cause harm and mislead people, resulting in negative consequences like diminished trust in the media.
- It's tough to detect these deepfake videos in real time as the detection apps take a lot of time for uploading videos for analysis, then hours for results.
- FakeCatcher helps restore trust by enabling users to distinguish between real and fake content.

Working of the software

- It runs on a server using Intel hardware and software, and interfaces through a web-based platform.
- On the software side, a collection of specialist tools form the optimised FakeCatcher architecture, which the real-time platform uses to detect deepfake.
- On the hardware side, the real-time detection platform can run up to 72 different detection streams simultaneously on 3rd Gen Intel Xeon Scalable processors.

Global Partnership on Artificial Intelligence

Science & Technology

Why in news?

- France, the outgoing Council Chair, will hand over the presidency to India at the third edition of the annual GPAI summit, which began in Tokyo recently.

About GPAI

- The Global Partnership in Artificial Intelligence was launched on June 15, 2020. It is a multi-stakeholder initiative that was developed by the G7 alliance.
- Its objective is to fill the gap between theory and practice on artificial intelligence by promoting cutting-edge research and related activities.
- This initiative promotes global cooperation on artificial intelligence technology by bringing together experts from fields like science, industry, civil society, governments, international bodies and academia on a single platform.
- The inaugural edition of the **GPAI summit** was held on December 3 and 4 of 2020.
- It was hosted by Montreal, Canada.
- The second edition was held on November 11 and 12, 2021.
- The two offices of the GPAI are situated in these two cities, with one in each location.

Members

- The GPAI currently has 25 member states.
- These are Australia, Belgium, Brazil, Canada, Czech Republic, Denmark, France, Germany, India, Ireland, Israel, Italy, Japan, Mexico, the Netherlands, New Zealand, Poland, the Republic of Korea (South Korea), Singapore, Slovenia, Spain, Sweden, the UK, the US and the EU.
- India became part of this international alliance in 2020 as a founding member.



Why in news?

- The 3rd Global High-Level Conference on Anti-Microbial Resistance is recently organized in Muscat, Oman recently.

About the conference

- The 3rd Global High-Level Conference on Anti-Microbial Resistance (AMR) aims to accelerate countermeasures for antimicrobial resistance at the national, regional and global levels and boost international cooperation in this issue.
- The 2022 conference's theme is "The AMR: from Policy to One Health Action". It provides an opportunity for dialogue on One Health action to address the issue of antimicrobial resistance.
- It aims to pave the way towards bold and specific political commitments in the United Nations General Assembly High Level Meeting on AMR (UNGA HLM) in 2024.
- More than 40 countries took part in this conference from across the world.

Antimicrobial resistance

- Antimicrobial resistance (AMR) is the ability of microorganisms to persist and grow despite the administration of antimicrobials – the drugs designed to inhibit or kill them.
- When microorganisms become highly resistant towards antimicrobials, standard treatments become ineffective and sometimes yield no desired outcome.
- This leads to the failure of treatment and increased instances of illness and mortality in humans, animals & plants.

Agnikul inaugurates India's first Private Space Vehicle launchpad in Sriharikota**Science & Technology****Why in news?**

- Chennai-based space tech startup Agnikul Cosmos recently opened India's first private launchpad and mission control centre at the Satish Dhawan Space Centre (SDSC) in Sriharikota, Andhra Pradesh.

About the launchpad

- The Agnikul launchpad and the Agnikul mission control centre are four kilometres apart. They are connected with each other via various critical systems to ensure 100 per operationality during the countdown.
- This facility was designed by the startup Agnikul Cosmos and executed with the support from ISRO and the IN-SPACe.
- It is first exclusive Launchpad for launching private launch vehicles.
- It is designed specifically to support liquid stage controlled launches and help ISRO range operations team to monitor flight safety parameters during launches.
- Agnikul's inaugural launch of the Agnibaan rocket will take place from this Launchpad. This mission is intended to be a technology demonstrator, mirroring Agnikul's orbital launch but at a reduced scale.

Agnibaan Rocket

- Agnibaan rocket is a customizable two-stage launch vehicle capable of carrying up to 100 kg payload to orbits some 700 km high (low earth orbits) and enable plug-and-play configuration. This mobile launch system is fully made using 3D printing.
- The rocket has three stages. The first stage is powered by 7 Agnite engines. The second stage uses an Agnilet engine optimized for vacuum use.
- The Agnilet is the world's first single-piece 3D printed engine to be fully designed and manufactured in India.
- It uses liquid oxygen and kerosene as oxidizer and fuel. It was successfully tested in 2021, making Agnikul the first company in India to test its engines in ISRO.

Dr Subhash Babu, first Indian scientist to be awarded Bailey K. Ashford Medal

Science & Technology

Why in news?

- For his outstanding research and contributions to tropical medicine, prominent Indian physician and scientist Dr. Subhash Babu has received the prestigious Bailey K. Ashford Medal for 2022 and the Fellow of the American Society of Tropical Medicine and Hygiene (FASTMH) award for 2022.

About Award

- The American Society of Tropical Medicine and Hygiene (ASTMH), the largest scientific organization in tropical medicine in the world, present the medal annually to one or more mid-career researchers for distinguished work in tropical medicine.

Dr. Subhash Babu

- Dr. Subhash Babu is the first Indian to receive both the Bailey K. Ashford medal and the FASTMH award.
- He is the Scientific Director of the ICER (International Centre for Excellence in Research)-India Programme.
- He is a pioneer in research on helminth infections and tuberculosis.
- He received the FASTMH award in addition to the Bailey K. Ashford award for his dedication to tropical medicine since 1995.
- Dr. Subhash Babu has made major contributions to the elucidation of the key immunological underpinnings of diseases including filariasis, influences of helminthic-infection on metabolic disorders, and the interface between diabetes and tuberculosis.
- Dr. Subhash Babu earned his medical degree in Tamil Nadu from the Government Kilpauk Medical College and his doctorate in immunology from the University of Connecticut in the United States.
- He returned to India in 2006 to establish the ICER on the campus of ICMR-NIRT in Chennai following his fellowship at the National Institutes of Health (NIH).

Network Readiness Index 2022

Science & Technology

Why in news?

- India has improved its position by six slots and is now placed at 61st rank as per the Network Readiness Index 2022 (NRI 2022) report released recently.

About the report

- NRI Report maps the network-based readiness landscape of 131 economies based on their performances in four different pillars: Technology, People, Governance, and Impact covering a total of 58 variables.
- The report has been prepared by the Portulans Institute, an independent non-profit, nonpartisan research and educational institute based in Washington DC.
- The report states that India secured 1st rank in "AI talent concentration", 2nd rank in "Mobile broadband internet traffic within the country" and "International Internet bandwidth", 3rd rank in "Annual investment in telecommunication services" and "Domestic market size", 4th rank in "ICT Services exports", 5th rank in "FTTH/Building Internet subscriptions" and "AI scientific publications".
- India is ranked 3rd out of 36 in the group of lower-middle-income countries after Ukraine (50) and Indonesia (59).
- India has a score higher than the income group average in all pillars and sub-pillars.

Why in news?

- The Indian Army is set to operationalise the first squadron of indigenous Light Combat Helicopter (LCH) this month. It will be based at Missamari air base in Assam and will be part of the aviation brigade tasked to defend the strategically vital western part of Arunachal Pradesh.

About LCH

- The LCH is the only attack helicopter in the world which can land and take off at an altitude of 5,000 meters with a considerable load of weapons and fuel.
- The helicopter uses radar-absorbing material to lower radar signature and has a significantly crash-proof structure and landing gear.
- A pressurised cabin offers protection from Nuclear, Biological and Chemical (NBC) contingencies.
- The helicopter is equipped with a countermeasure dispensing system that protects it from enemy radars or infrared seekers of enemy missiles.
- LCH is powered by two French-origin Shakti engines manufactured by the HAL.

Features

- Powered by two Turbomeca Shakti engines
- 6,500 m service ceiling, ideal to fly over highest of Himalayan passes
- 5.8 tonne helicopter carries a turret gun, a rocket firing system and air-to-air missiles
- It can be used against enemy tank formations, infantry and unmanned aerial vehicles
- The display panel allows pilots wearing night vision goggles to see the display

Submersible Platform for Acoustic Characterization and Evaluation (SPACE) facility**Defence & Security****Why in news?**

- Defence Research and Development Organization (DRDO) launched the hull module of the Submersible Platform for Acoustic Characterization and Evaluation (SPACE) facility at Naval Physical and Oceanographic Laboratory (NPOL) in Kochi recently.

About SPACE

- The SPACE facility is based on the concept design and requirements projected by NPOL and has been constructed by M/s L&T Shipbuilding, Chennai.
- It will be mainly utilized for evaluating Sonar systems, allowing for quick deployment and easy recovery of scientific packages such as sensors and transducers.
- The SPACE is a one-of-a-kind facility in the world. The uniqueness of this facility lies in the specially designed submersible platform, which can be lowered up to depths of 100 meters using a series of synchronously operated winches.
- The design and construction of the platform meet all the statutory needs of the Indian Register of Shipping and the vessel classifying authority.

India to conduct major 'Sea Vigil' Coastal Defence Exercise**Defence & Security****Why in news?**

- The third edition of the 'Pan-India' Coastal Defence Exercise 'Sea Vigil-22' will be conducted on 15-16 November 2022.

About the Exercise

- This National Level Coastal Defence Exercise was conceptualised in 2018 to validate various measures that have been instituted towards enhancing maritime security since '26/11.



- The concept of 'Sea Vigil' is to activate the Coastal Security apparatus across India and assess the overarching Coastal Defence mechanism.
- The exercise will be undertaken along the entire 7516 km coastline and Exclusive Economic Zone of India and will involve all the Coastal States and Union territories along with other maritime stakeholders, including the fishing and coastal communities.
- The exercise is being conducted by the Indian Navy in coordination with the Coast Guard and other ministries entrusted with the task of maritime activities.
- The scale and conceptual expanse of the exercise is unprecedented in terms of the geographical extent, the number of stakeholders involved, the number of units participating and in terms of the objectives to be met.
- The exercise is a build up towards the major Theatre Level Readiness Operational Exercise (TROPEX), which the Indian Navy conducts every two years.
- Sea Vigil and TROPEX together will cover the entire spectrum Maritime Security challenges. Assets of the Indian Navy, Coast Guard, Customs and other maritime agencies will participate in Ex Sea Vigil.
- It provides opportunity, at the apex level, to assess our preparedness in the domain of Maritime Security and Coastal Defence.
- Exercise Sea Vigil-22 will provide realistic assessment of our strengths and weaknesses and thus will help in further strengthening Maritime and National Security.

YUDH ABHYAS 2022

Defence & Security

Why in news?

- The 18th edition of Indo - US joint training exercise "YUDH ABHYAS 22" is conducted recently.

Yudh Abhyas

- The previous edition of the exercise was conducted at Joint Base Elmendorf Richardson, Alaska (USA) in October 2021.
- It is the largest running joint military training and defence cooperation endeavor between India and the US.
- The exercise was started in 2004 under the US Army Pacific Partnership Program. The exercise is hosted alternately between both countries.
- The exercise aims at enhancing understanding, cooperation and interoperability between two Armies.
- This will help them in undertaking joint operations at battalion level in mountainous terrain with cold climatic conditions under the ambit of the United Nations.
- The joint exercise will also focus on Humanitarian Assistance and Disaster Relief (HADR) operations.
- Troops from both nations will practice launching of swift & coordinated relief efforts in the wake of any natural calamity.

- Exercises between India and the US
- Exercise Tiger Triumph (Humanitarian Assistance and Disaster Relief exercise)
- Exercise Vajra Prahar (Special Forces' Exercise)
- Cope India (Air Force).
- Malabar Exercise (Quadrilateral naval exercise of India, USA, Japan and Australia).
- Red Flag (US' multilateral air exercise).

Army observes 60th anniversary of battle of Rezang La in Ladakh

Defence & Security

Why in news?

- November 18 marks the 60th anniversary of the Battle of Rezang La.

About Rzung La battle

- In 1962, the Charlie Company (C Company) of the 13th battalion of the Kumaon Regiment fought against the Chinese attack at the Rezang La Pass in Ladakh.
- The C Company, led by Maj. Shaitan Singh, had 117 soldiers. Of these, 110 were martyred during this battle.

- The 13th battalion was responsible for the defence of Chushul. Its C Company commanded by Major Shaitan Singh was entrusted with the security of the Rezang La.
- While the C Company, having three platoons stationed across a 2-km frontage, was well-entrenched and reasonably well-equipped, it did not have mines and the overhead shelter for the command posts was insufficient in sub-zero temperature.
- Many of the Indian soldiers lost their lives to the freezing temperature during this battle.



About Rezang La

- Rezang La, also known as Rechin La, is a mountain pass on the Line of Actual Control (LAC) between Indian-administered Ladakh and the Chinese administered Spanggur Lake basin, which is also claimed by India. It is situated on the eastern watershed ridge of the Chushul Valley that is being claimed by China.
- This 16,000-foot-high feature is a narrow gap between the even higher mountains around the strategically-significant Chushul village and the Spanggur Lake, which span across both the Indian and Chinese territories.

Naseem Al Bahr-2022

Defence & Security

Why in news?

- The 13th edition of bilateral exercise between the Indian and the Royal Oman navies, Naseem Al Bahr-2022, commenced off the coast of Oman on 20 November 2022.

Naseem Al Bahr-2022

- Naseem Al Bahr naval exercise was started in **1993**.
- The last edition was conducted off **Goa in 2019**.
- India has ancient maritime tradition and maritime interaction with Oman dates back to over 4000 years BC. Bilateral relations between both countries were formally established with signing of 1953 Indo-Oman Treaty of friendship, Navigation and Commerce.
- It was first between India and Arab country.
- The Indian Navy's guided missile frigate **Trikand** and Offshore Patrol Vessel **Sumitra**, with their integral helicopters, and the maritime patrol aircraft, Dornier, are participating in the exercise.
- The exercise facilitates operational-level interaction between the two navies to foster mutual cooperation and enhance good order at sea.
- The exercise also aims to strengthen the ancient maritime and cultural linkages between India and Oman.

Navy gets Super Advanced Missile Destroyer

Defence & Security

Why in news?

- The second ship of Project 15B has been delivered to the Indian Navy.
- The indigenously built "Y 12705 Mormugao" warship gives more teeth to the warriors of the sea.

INS Mormugao

- It is among the most technologically advanced guided missile destroyers in the world.
- The warship is equipped with BrahMos surface-to-surface missiles, surface-to-air missiles, anti-submarine rocket launchers, indigenous torpedo tube launchers, and a 76mm super rapid gun mount.



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- Designed by the Warship Design Bureau, the Indian Navy's in-house organization; and built by M/s Mazagon Dock Shipbuilders Ltd, Mumbai; the four ships of the Project are christened after major cities from all four corners of the country, viz. Visakhapatnam, Mormugao, Imphal and Surat.
- The keel of Mormugao was laid in June 2015 and the ship was launched on 17 September 2016.
- The design has largely maintained the hull form, propulsion machinery, many platform equipment and major weapons and sensors as the Kolkata class to benefit from series production.
- The ship is 163 meters long and 17 meters wide, displaces 7400 tonnes when fully loaded, and has a maximum speed of 30 knots.
- Apart from myriad indigenous equipment in the 'Float' and 'Move' categories, the destroyer is also installed with the under-mentioned major indigenous weapons.
- The overall indigenous content of the project is approx. 75%.



Project 15B

- The Visakhapatnam-class destroyers, commonly known as the P-15 Bravo-class destroyers or just P-15B, are a series of guided-missile warships currently under construction for the Indian Navy.
- The P-15 class is an updated version of its forerunner, the Kolkata-class, with enhanced stealth, mechanisation, and armament capabilities. Mazagon Dock Limited (MDL) is building four ships conceived by the Directorate of Naval Design (DND) as part of the Make in India project.
- The design around the bridge area appears to be the main design change compared to the preceding Kolkata-class.
- P15B ships will be equipped to carry and operate two multi-role helicopters.

India-Australia military exercise Austra Hind 2022

Defence & Security

Why in news?

- The Austra Hind 22 exercise commenced recently in Rajasthan.

Austra Hind 2022

- The Austra Hind 22 is a bilateral training exercise between the Indian Army and the Australian Army.
- The Australian Army is represented by soldiers from the 13th Brigade of the 2nd Division.
- The Indian side is represented by the troops belonging to the Dogra Regiment.
- This is the inaugural edition of the Austra Hind series. This joint exercise will involve all arms and services contingents of both countries' armies. It will be hosted alternatively by India and Australia.

Significance

- The objective of the Austra Hind series is to build positive military relations between India and Australia. It enables both the Indian Army and the Australian Army to share each other's best practices.
- It also seeks to promote interoperability between them while undertaking multi-domain operations in semi-desert terrain under the UN peace enforcement mandate.
- The joint exercise enables the armies of India and Australia to share best practices in tactics, techniques and procedures to conduct tactical operations at the company and platoon levels for neutralizing hostile threats.



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- Topic-wise consolidation tests
- Essay writing sessions
- Exam centric approach

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