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PIONEER ACADEMY's
PATHFINDER
CURRENT AFFAIRS FOR CIVIL SERVICES

INDEX

Topic 1. NEIGHBOUR'S ENVY: INDIA'S JUTE ECONOMY IS FALTERING WHILE BANGLADESH'S IS FLOURISHING; HERE'S WHY

Important for subject: Geography

Economic Insufficiency of Market government procurement and diversification, a poor infrastructure and the deteriorating condition of Indian Jute mills are responsible for the current state of affairs.

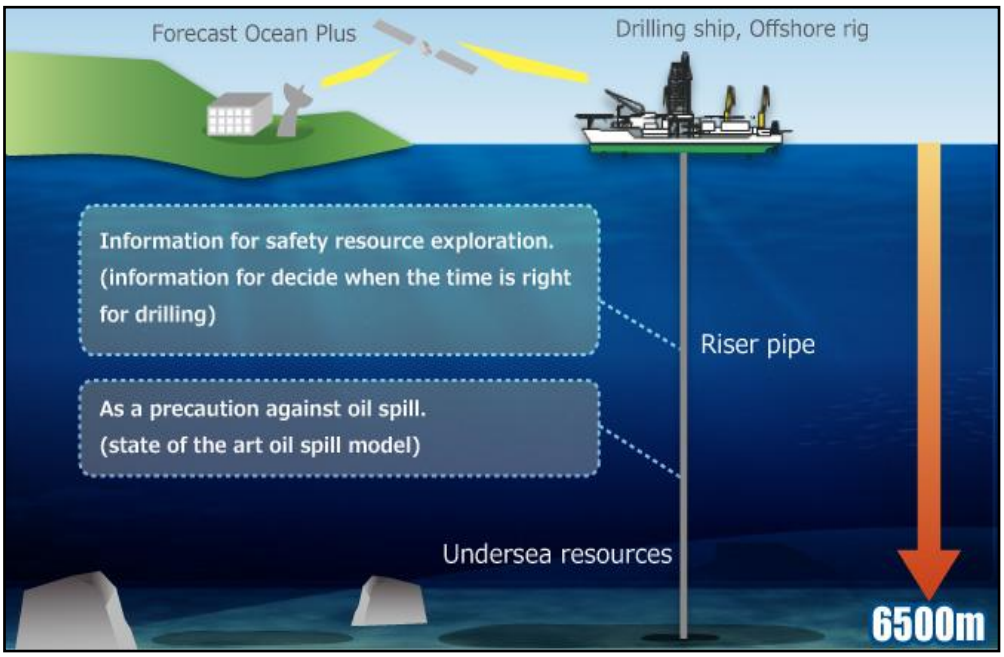
- India remains the biggest producer of jute but in terms of acres, Bangladesh is the largest cultivator.
- The state of West Bengal - the biggest jute-producing state in the world with 70 of India's 93 mills for jute the area of Jute has been reduced to 0.1 million ha in the years 2009-10 to the 2020-21.
- Jute is an extremely profitable product. Its leaves are offered on the market as vegetable before the harvest is completed.
- The stem inside can be used to produce paper, while the outer layer creates fiber.
- The Jute Packaging Materials (Compulsory Use in the Packing of Commodities) Act 1987 (JPMA) It allows the usage of jute packaging materials for food grains.
- In this Act the government can issue orally to require the use of jute-based packaging
- In 2017, rules state that 100 percent of foodstuffs and 20 percent of sugar can be packaged in bags made of jute.
- Because of this, the jute bags account for 75 percent of total output of the industry.
- National Jute Board It is controlled by the National Jute Board Act-2008, which was drafted by the Ministry of Textiles, Govt. of India and approved through the Indian Parliament on the 12th of February 2009.
- Board is involved in research and development of human resources programs to investigate innovative and new ways to use Jute, with the aim of helping both the organized and those in the uncentralized industry to be competitive and grow the proportion of global Indian Jute-related goods.
- Initiatives of the Government Initiatives for Promoting Jute Industry Jute Corporation of India (JCI) purchases raw jute at the Minimum Support Price (MSP) that is fixed on the basis of the recommendations by the commission on Agricultural Cost and Prices (CACP) and jute growers to protect their interests.
- Incentive Schemes for Acquisition of Plants and Machinery (ISAPM) in 2013 to help

modernize new and existing jute mills as well as upgrading of the technology used in existing mills using jute.

- Jute ICARE (Jute: Improved Cultivation and Advanced Retting Exercise):
- The pilot project, which was launched in 2015 aims to address the challenges facing jute growers by providing them with certified seeds at reduced prices and also by promoting new retting techniques that have been developed under water-limited conditions.
- The National Jute Board implements various plans for market development as well as the welfare of workers and expansion of diversification as well as exports.
- To increase demand in the jute industry to boost demand, the government has put in place antidumping duties on imports of jute products coming from Bangladesh as well as Nepal.
- The Facts about Jute Jut is known as the "golden fiber" is the longest-running and widely utilized natural fibres for a variety of textile uses.
- It is a favourite in tropical lowlands where humidity ranges from 60 90 to 80 percent. Jute is a rain-fed plant and does not require pesticides or fertilizers.
- Retting Jute is a method that involves the tying strings of stalks made from jute get immersed in water and fibers break loose and separate from the stalks of wood.
- The top jute producing countries in the world include India, Bangladesh, China and Thailand.
- India is the world's biggest manufacturer of raw jute as well as Jute-related products, making up about 50 and 40% of production worldwide.
- The jute plantation in India is mostly restricted to the eastern part in the nation.
- Jute is a crop that is produced in seven states: West Bengal, Assam , Orissa , Bihar , Uttar Pradesh , Tripura and Meghalaya.
- West Bengal alone accounts for more than 50% of Jute raw production.
- To increase awareness and promote diversification in jute work National Jute Board, Ministry of Textiles is the highest authority for the promotion of the product in India as well as abroad.
- Jute was first mill built in Rishra (Bengal currently in West Bengal), on the river Hooghly close to Calcutta in 1855 by George Aclend. George Aclend. Then, in 1959 the first electric driven weaving plant was established.

Topic 2. HARNESS THE POTENTIAL OF OCEAN RESOURCES.

Important for subject: Geography



Ministry of Earth Sciences (MoES) has launched a number of initiatives to maximize their potential Ocean resources.

- Government of India has signed an agreement for 15 years with the International Seabed Authority (ISA) for the exploration of polymetallic nodules of the Central Indian Ocean Basin (CIOB) in 2002.
- MoES has conducted exploration and other development operations related to polymetallic sulphides under a 15-year agreement signed in 2016 by the International Seabed Authority (ISA) to explore the polymetallic sulphides within an allotted territory of 10,000 square kilometers in the Central Indian Ridge (CIR) and Southwest Indian Ridge (SWIR) region of the Indian Ocean.
- National Institute of Ocean Technology (NIOT) under MoES has designed, tested, and operated remotely operated, unmanned systems to tap into ocean resources.
- Marine Living Resources Programme (MLRP): Centre for Marine Living Resources and Ecology (CMLRE) of MoES examined deep-sea living resources of the Marine Living Resources Programme (MLRP).
- The program covers regular monitoring of Indian ecosystems that span from deep to pelagic seas as well as the documentation of taxonomic information and the development of new technology to exploit the resources.

- Geological Survey of India (GSI) under the Ministry of Mines has delineated possible offshore areas in the Exclusive Economic Zone (EEZ) of India for minerals found in marine environments, such as lime mud heavy mineral placers, ilmenite monazite, monazite and rutile sillimanite and garnet, zircon] and construction sand.

Topic 3. DECLINE IN QUANTITY AND QUALITY OF GROUND WATER

Important for subject: Geography

The analysis of data on water levels shows that around 70% of monitoring wells have seen an increase in the ground water level. However around 30 percent of wells have seen a decrease in water levels.

- The quantity of groundwater available is contingent upon several variables like the intensity and duration of rainfall, the geological strata of the region as well as the amount of recharge structures, the amount of water extracted by customers for different uses like industrial , domestic or drinking and irrigation practices, including the pattern of cropping and the intensity , etc.
- The status of ground water is monitored as reported by CGWB Central Ground Water Board (CGWB) regularly monitors the ground water levels as well as water quality across the nation on a regional basis via an extensive network of monitoring wells.
- These studies show the presence of Fluoride Arsenic Iron, and heavy Metals over the BIS allowed limits in small areas in some parts of the nation.
- Analyzing data on water level shows that around 70% of monitoring wells have seen an increase in ground water levels. However approximately 30 percent of the wells have experienced a decline in water levels.
- Furthermore it has been discovered that nitrate contamination is primarily anthropogenic, and its growth is evident in certain zones, specifically those near homes.
- Additionally, nitrate contamination could also result from the fertilizers' use.
- According to the Central Ground Water Board (CGWB) study groundwater pollution is generally Geogenic in nature, and doesn't show any significant changes in the past.
- Actions to conserve the water bodies Census of Water Bodies The Ministry of Jal Shakti has launched the very first Census of Water Bodies in connection of the Sixth Minor Irrigation Census (reference year 2017-18) with the intention of creating a database national for all the water bodies throughout the country.

- Steps to Conservation of Water bodies:
- Jal Shakti Abhiyan (JSA) was established in the year 2019 in water-stressed blocks of 256 districts.
- It continued through 2021 (across the entire country, both urban and rural) and also with the main objective of efficiently harvesting the monsoon rains through the creation of recharge structures that are artificial and watershed management structure for reuse and refill, extensive forest afforestation, awareness-raising etc.
- Amrit Sarovar Mission launched on 24 April 2022, aims towards rehabilitating and developing 75 water bodies across each district in the country.
- Atal Mission for Rejuvenation and Urban Transformation (AMRUT) scheme the rejuvenation of the water body is part of the water supply section of the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) scheme under the Ministry of Housing & Urban Affairs. AMRUT 2.0 was announced in Octoberof 2021.
- Jal Shakti Abhiyan"Catch The Rain" (JSA:CTR) campaign: Specific interventions under the annual campaigns enacted with both the Government of India and the State Governments, includes the renovation of traditional water and other bodies, enumeration, geo tagging and taking lists of water bodies in all areas and removing encroachments and de-silting tanks, and the protection of the water catchment areas.
- Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) includes the capacity to fund public works related to managing natural resources as well as water conservation and harvesting structures to increase and improve groundwater such as underground dikes, earthen dams check dams, stop dams, and roof top rain water harvesting structures on public structures.
- The steps taken to control and manage groundwater extraction by different users, including irrigation "Linking patterns of the crop with the availability of groundwater"
- "Sahi Fashal" campaign: It was announced through the Department of Water Resources and River Development and Ganga Rejuvenation on the 1st of January, 2019 to encourage farmers in water-stressed regions to cultivate crops that are financially profitable and nutritious, suitable to the agro-climatic and hydro characteristics of the region, are sustainable and not water-intensive.
- Informing farmers about suitable crops, micro-irrigation techniques as well as soil moisture conservation transitioning them from the water intensive crop to those that

require less water, and assisting the policy makers in drafting policies, etc. are just some of the main facets that the program.

- National Aquifer Mapping Program (NAQUIM) It is implemented by CGWB with the aim of discover the groundwater aquifer systems and to determine their classification for sustainable management.
- From the total area mappable of more than 25 lakh square kilometers more than 10 lakh square kilometers of the total area (as as on June 30, 2022) within the country has been covered.
- The remainder of the area has been set to be covered by the end of March 2023.
- Atal Bhujal Yojana The scheme is managed in the name of the federal government, with an investment of 6,000 million in partnership with States in water-stressed areas in Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh.
- The primary aim of the scheme is demand side management including implementation of crop rotation/diversification, changing crop pattern, use of sprinklers/drip irrigation system etc by involving the local communities at village levels leading to sustainable groundwater management in the targeted areas.
- Pradhan Mantri Krishyee Yojana (PMKSY): Government of India offers financial assistance to the States under the Repair, Renovation and Restoration of Water Bodies part of Pradhan Mantri Krishi Sinchayee Yajana (PMKSY) -- Har Khet Ko Pani (HKKP).
- The National Water Policy (NWP) 2012 declares that conserving water for irrigation is of vital importance.
- The policy also outlines methods such as aligning the pattern of cropping with natural resource resources, micro irrigation (drip sprinkler, drip and etc.), automated irrigation operation, evaporation-transpiration reduction etc., should be encouraged and incentivized.
- Other: Water is a State Important for subject and several States have done notable work in the field of water conservation/harvesting such as 'Mukhyamantri Jal Swavlamban Abhiyan' in Rajasthan, 'Jalyukt Shibar' in Maharashtra, 'Sujalam Sufalam Abhiyan' in Gujarat, 'Mission Kakatiya' in Telangana, NeeruChettu' in Andhra Pradesh, Jal Jeevan Hariyali in Bihar, 'Jal Hi Jeevan' in Haryana, and Kudimaramath scheme in Tamil Nadu.

- However, the Central Pollution Control Board (CPCB) together with State Pollution Control Boards/Pollution Control Committees (SPCBs/PCCs) implements the requirements in the Water (Prevention & Control) Act 1974 as well as the Environment (Protection) Act, 1986 throughout the country in order to stop and reduce contamination in water.

Topic 4. THE EARTH HAS RECORDED ITS SHORTEST DAY SINCE THE 1960S - WHY ARE WE SPINNING FASTER AND WHAT IMPACT CAN IT HAVE?

Important for subject: Geography

Physiography On the 29th of June, the Earth completed one full rotation -- or a day - -that was 1.59 milliseconds lower than the time it takes to complete its normal 24 hour cycle.

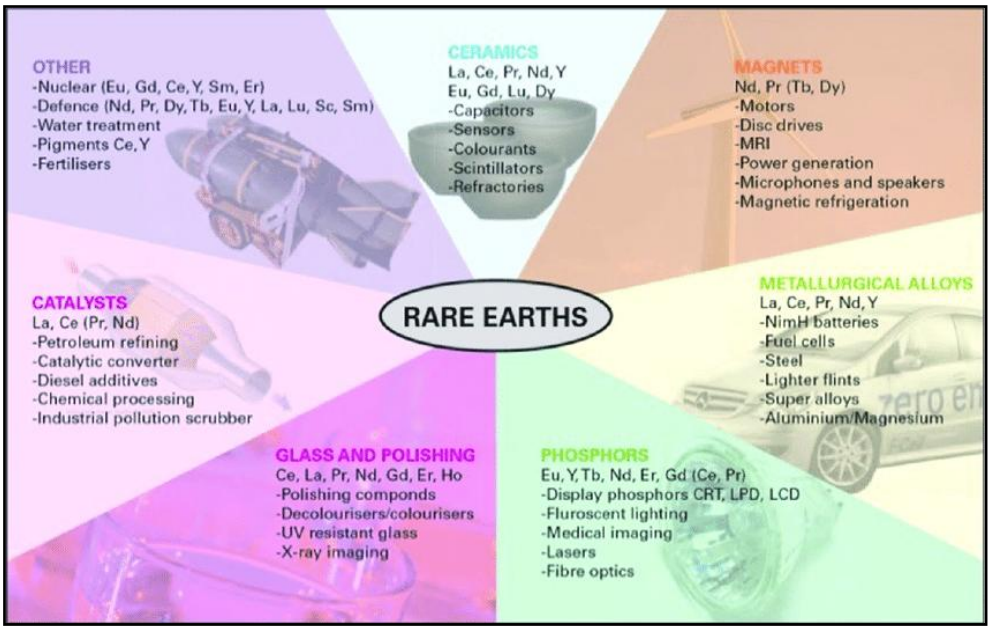
- Also, the Earth is moving fast. What's new? Even though the Earth is completing its rotations at a faster pace in recent times in comparison to an extended period of time, the planet actually is spinning slower.
- Every century is when the Earth will take just a few milliseconds more time to complete one full rotation in the average, the days are becoming longer.
- Thus, 1.4 billion years ago a single day would have lasted just 19 or less hours. The Guardian reported in 2018 quoting an academic paper that was published the same year.
- The study attributed the greater tendency of Earth's slow rotation mostly due to the gravitational pull exerted by the Moon which creates friction in the tidal zone and slows the Earth's spin.
- Why are the days becoming shorter? The hypothesis is that climate change-related surface changes, which affect the way the Earth spins and spins, could be the reason.
- These changes in the surface include melting glaciers that are found in Greenland and Antarctica and changes in the ocean circulation.
- Experts believe that the reason is internal and is rooted in the core's movement.
- among the numerous factors that influence speeds of Earth are the movements of the core of the planet's inner molten core as well as the activity of seismic waves, winds speed and atmospheric gases shifting.
- The actions that push mass towards the center of the Earth will accelerate the Earth's rotation. On the other hand, anything that pushes mass away will slow the spin.
- There are some experts who claim that the shorter length of the day may be due to the

"Chandler wobble," an event that is the tiny deviation in geocentric poles of Earth.

- The usual intensity of the Chandler wobble is three or four metres on the surface of the Earth, however from 2017 until 2020, it vanished
- The turning Earth is influenced by a variety of elements, such as variations in the way that winds blow, or currents within the ocean.
- Certain of these elements can boost the speed of the planet as well as bring it down.
- What could happen if Earth continues to accelerate on a regular basis?
- To make sure that the time displayed on clocks corresponds to the speed of Earth's rotation, the system of leap seconds has been in use from the 1970s.
- They require one-second adjustment for Coordinated Universal Time (UTC) which is the standard for time employed to synchronize clocks throughout the globe.
- In response to the slowing of the earth's rotation due to the slowing of the planet's spin, 27 leap seconds have been added to UTC.
- But, if it is the case that Earth continues to rotate faster and the days are subsequently shorter, scientists could need to develop the first ever negative leap second' that is a subtraction of seconds from the clock

Topic 5. WHAT ARE RARE EARTH ELEMENTS AND WHY IS INDIA KEEN TO JOIN A GLOBAL ALLIANCE TO ENSURE THEIR SUPPLY?

Important for subject: Geography



Economy Geography Rare earths can be crucial for electronic devices, including hybrid and

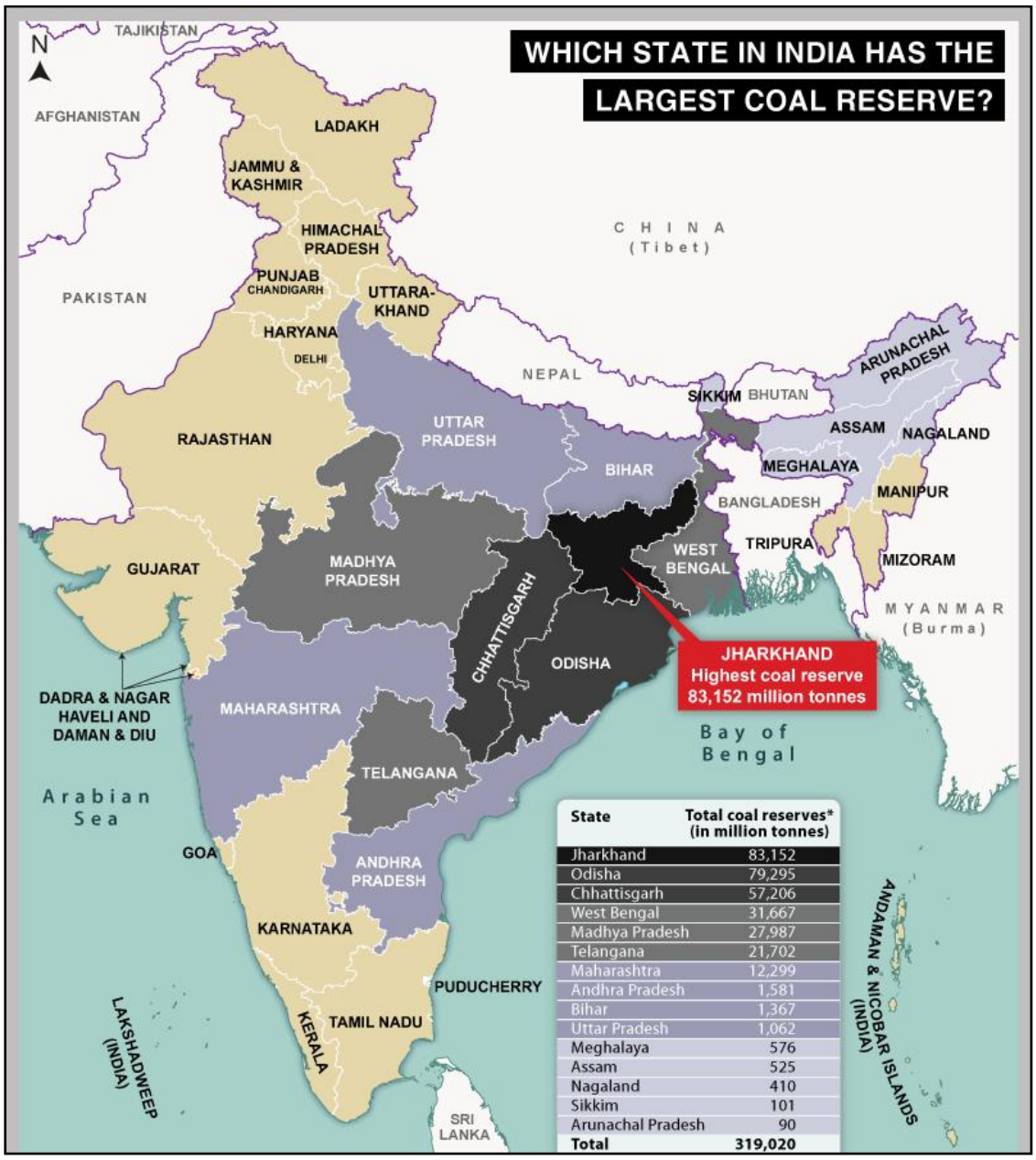
electric vehicles for which India is dedicated.

- As the Covid-19 outbreak and the geopolitical tensions between China have shown that, the Chinese close-to-monopoly on their export and production causes significant supply-side risks.
- What exactly is Minerals Security Partnership (MSP)? The US as well as 10 other partners-- Australia, Canada, Finland, France, Germany, Japan and Japan, the Republic of Korea (South Korea), Sweden, the United Kingdom, and the European Commission -- have joined forces to form the MSP.
- The new grouping aims to stimulate investment from both the government and private companies to identify strategic opportunities.
- The grouping, as industry experts say, will focus on the supply chains for minerals like Cobalt, Nickel, Lithium and the 17 rare earth minerals.
- The alliance is principally focused on creating as an alternative to China and has developed processing infrastructure for rare earth minerals, and purchased mining facilities in Africa for elements like Cobalt.
- Are there uncommon earth elements? These 17 rare earth elements (REE) comprise fifteen Lanthanides (atomic numbers 57, which corresponds to Lanthanum -to seventy-one in the periodic table) as well as Scandium (atomic numeral 21) and Yttrium (39). They are also classified under RE elements with a light weight (LREE) in addition to heavier RE elements (HREE).
- Certain REEs are readily available in India including Lanthanum, Cerium, Neodymium, Praseodymium and Samarium, others, like Dysprosium, Terbium, and Europium, classified as HREEs and are not found in Indian reserves in extractable amounts.
- Thus it is dependent on nations like China for HREEs as it is among the top producers of REEs which accounts for around 70 percent part of the world production.
- As per the US Geological Survey, supplies from China began to shift from the time of 1990 since Beijing was constantly changing the quantities it allowed to be exported and produced.
- According to the USGS The Chinese government started to limit the amount of businesses that are Chinese as well as Sino-foreign joint ventures, which might export REEs from China.

- What are the significance of these minerals?
- Minerals such as Cobalt, Nickel, and Lithium are essential to make batteries for electric vehicles.
- REEs are a vital but often insignificant component in over 200 of the most popular consumer goods such as mobile phones, computers with hard drives, hybrid and electric vehicles semiconductors, flat-screen TVs and monitors, as well as electronic devices that are high-end.
- India is considered to be an early mover to get into the value chain of lithium, occurring at a moment when EVs are expected to be a market which is poised for disruption.
- What is India's biggest issue at the moment?
- "If India is not able to mine and extract the minerals it needs, then India will need depend on a small number of nations which include China for power to its energy transition plan to electric vehicles.
- It's like our dependence on a handful of nations for crude oil." one economist stated.
- Industry experts say they believe that one of the reasons India isn't able to find a spot in MSP grouping MSP grouping is due to the fact that the country doesn't have any experience to bring into the discussion.
- Within the group, countries such as Australia along with Canada have reserves as well as the technology for extracting these reserves, while countries like Japan have the capability for processing REEs.

Topic 6. COAL PRODUCTION

Important for subject: Geography



The coal supply at Thermal Power Plants (TPP) has grown to 25.6 million tonnes (MT) at the time of writing to 29.5 tonnes (MT) from March to June.

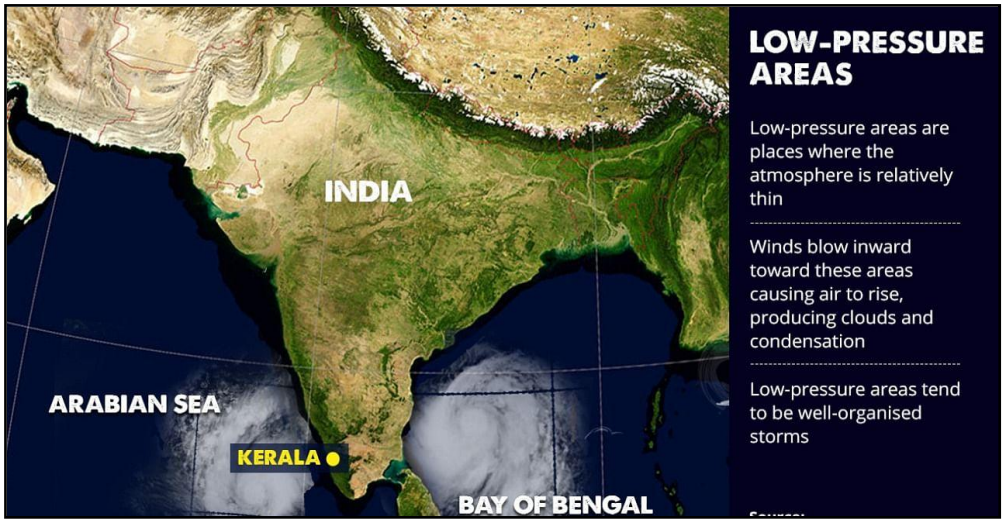
- Draft Economic Survey 2021-22 projects coal demand to increase by 3 to 1.5 Billion Tonnes by 2030.
- In the current year (up to June 22) the country has an increase of around 31% over the same period the previous year.
- The coal supply available to Thermal power stations (TPP) of the country is

monitored on a every day basis by the Central Electricity Authority (CEA) The stock has increased by 25.6 million tonnes (MT) in 2022 to 29.5 MT in April-June 2022.

- The thermal power generation in the country in April and June 2022 witnessed a rise by 18 percent.
- The steps taken to increase the production of domestic coal: The enactment of Mines and Minerals (Development and Regulation) Amendment Act, 2021
- The Act states that captive mine owners (other other than the atomic minerals) are able to sell up 50 percent of the annual minerals (including coal) production to the market once they have met the conditions of the end use plant as specified to the Central Government.
- Auction of coal blocks for commercial auction on a revenue sharing basis.
- A Monitoring Committee has been established under the chairmanship of the Secretary (Coal) and Chief Secretaries of the Host States Secretary (MoEF and Coal Controller Organization (CC), Coal Controller Organization (CCO) and CMPDIL to be Members of the Committee.
- Expansion of Mines MoEF & CC granted a special dispensation at the request of the minister of coal for the consideration for consideration of Environment Clearance (EC) from 40 percent to 50% expansion for coal mining projects within the current mine lease area and premises, without the need for additional land acquisitions, and only the mines which already have received the 40% dispensation as a result of previous reforms enacted by MoEF & CC.

Topic 7. WHY IS HEAVY RAINFALL BATTERING KERALA?

Important for subject: Geography

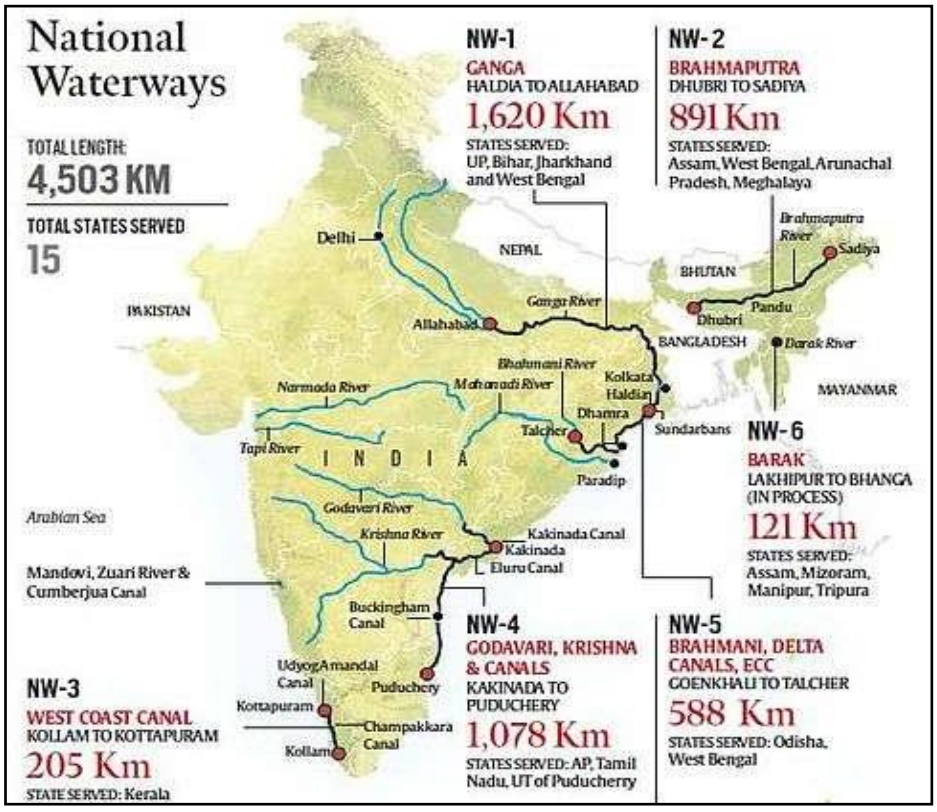


What's the reason Kerala seeing the heavy rainfall?

- Kerala is currently in the grip of at the very least three rainfall-triggering weather conditions.
- There are powerful Westerly winds coming in out of into the Arabian Sea, and bringing water to Kerala.
- The existence of an east-west shear zone that is located 10 degrees to the north on the peninsula's southern portion.
- This vertical zone which can be found in the middle, lower or higher levels of the atmosphere it allows active winds at high speed to come into contact.
- This zone also permits monsoon winds to continue to be active, resulting in an intense rainfall over the region in its influence.
- The IMD also stated that the existence of a north-south drain running across Chhattisgarh and Comorin regions, which are situated near south Kerala is causing widespread rain.
- Why is there more rain this year? The expectation of an average monsoon during September and August are based on the recurrence of La Nina which is the opposite to El Nino and characterised by the cooling of the waters of the Central Pacific.
- The result is likely to provide more rainfall to the Indian subcontinent, a change from the El Nino that usually dry down the rainfall.
- However there is also it is the Indian Ocean Dipole, another indicator of importance, characterized by a shift in warm water between western and eastern portions of the Indian Ocean, to the monsoon, is likely to be negative.
- The outlook for the negative is likely to have a negative impact on the monsoon season, but M. Mohapatra, Director-General, IMD, said that it was unlikely to result in a significant deficit due to the favorable effects from La Nina.

Topic 8. NATIONAL WATERWAYS

Important for subject: Geography



In order to promote inland water transportation (IWT) across the nation there are 111 inland waterways that located across the 24 states of India have been designated to be National Waterways (NWs) under National Waterway Act, 2016.

- Based on the findings of the feasibility tests and technoeconomics as well as Detailed Project Reports (DPRs) of these NWs, an action plan was developed in collaboration with IWAI in 26 NWs that were found suitable for the movement of cargo or passengers.
- Important National Waterways:
- National Waterway-1: Allahabad-Haldia stretch of the Ganga-BhagirathiHooghly River (1620 Km) declared as NW in 1986 in the states of Uttar Pradesh, Bihar, Jharkhand and West Bengal.
- The project was conceived through IWAI with the technical and financial support from the World Bank at a revised estimate of Rs. 4633.84 cr.
- National Waterway 2: Sadiya-Dhubri section of Brahmaputra River (891 km) designated as a National Waterway in 1988 in the state of Assam.

- National Waterway 3: Kollam-Kottapuram section comprising West Coast Canal and Champakara and Udyogmandal canals (205 Km) declared a National Waterway in 1993 in the state of Kerala
- National Waterway-4: Kakinada-Pudducherry stretch of canals and Kaluvelly tank, Bhadrachalam-Rajahmundry stretch of river Godavari and WazirabadVijayawada stretch of river Krishna (1078 Km) declared as National Waterway in 2008 in the states of Andhra Pradesh, Tamil Nadu and Union Territory of Puducherry.
- It is the Krishna River (Vijayawada - Muktyala) across approximately 82 kilometers, the stretch of the river Krishna that runs between Vijayawada as well as Galagali forms part of the the declared National Waterway-4. However, there is no development activity on this stretch was completed under the Sagarmala scheme.
- National Waterway 5: Talcher Dhamra stretch of Rivers Geonkhali and Charbatia stretch of East Coast Canal, Charbatia-Dhamra stretch of Matai River and Mahanadi Delta Rivers (588 Km) declared a National Waterway in 2008 in the states of West Bengal and Orissa.
- Inland Waterways Authority of India It is a legal entity created in 1986 to develop and control of inland waterways to facilitate navigation and shipping.
- It is primarily involved in projects that focus on construction and maintaining IWT infrastructure along national waterways, through grants by the Ministry of Shipping.
- It is headquartered in Noida and has regional office in Patna (Bihar), Kolkata (West Bengal), Guwahati (Assam) and Kochi (Kerala) as well as sub-offices in other cities across India.

Topic 9. NADIS

Important for subject: Geography

The nadis of Rajasthan as a form of insurance against dry summer.

- Nadis also known as Talabs (ponds) They are shallow depressions scattered across the countryside in the desert areas that are part of Jodhpur as well as Barmer districts.
- The water that flows through these tanks will quench thirst of both human and cattle beings, as and wild animals in the dry times later in the year.
- The rural communities utilize these structures to store rainwater by making use of their traditional knowledge and locally accessible materials, in light of the erratic and

limited rainfall in the state.

- They'll create micro-climates that will increase the local resilience against the unpredictable effects of climate change and global warming.
- (i)The Ramrawas Kalan village, located 49 km to the from the east from Jodhpur has two Nadis.
- (ii)The two larger structures, Deoli as well as Chan are located in Orans (associated to local gods) (or sacred forests) located 10 km away from the village.
- Traditional water Conservation Systems in India: Jhalaras Jhalaras are generally rectangular-shaped stepwells, with tied steps on four or three edges in Rajasthan.
- Bawari Bawaris are distinctive stepwells which were once part of the old networks of water storage within Rajasthan's cities. Rajasthan.
- Taanka Taanka is a traditional rainwater harvesting technique that is native in Rajasthan. Thar desert region in Rajasthan.
- Taanka Taanka is a circular paved underground pit through which rainwater from courtyards, rooftops or catchments that are artificially constructed flows.
- Ahar Pynes Ahar Pynes are traditional systems of harvesting water from floods native from South Bihar.
- Ahars are reservoirs that have embankments along three sides. They are built on the top of diversion channels, similar to pynes.
- Pynes can be described as artificial rivers that flow away from rivers to capture the water from the ahars to use to be used for irrigation during dry season.
- The paddy farming in this low-rainfall region is largely on the aharpynes. PanamKeni is the Kuruma tribe (a indigenous tribe from Wayanad, Kerala) uses an exclusive kind of well, known as panamkeni, to store water. panamkeni for storing water.
- Wooden cylinders are created by taking the toddy's stems and palms for a prolonged period of time, to allow the core to rot away until just the outside layer is left.
- The cylinders, which measure 4 feet in diameter and depth are then submerged into groundwater springs that are located in forests and fields.
- Kund A Kund is a saucer-shaped capturement zone that gently slopes toward its central underground hole.
- Its main function is to capture rainwater to drink.
- Kunds appear on the sandier terrains of the western part of Rajasthan as well as

Gujarat.

- Zing Zings, found in Ladakh are small tanks that store melting glacier water.
- A system of channels for guiding connects the glacier to the reservoir.
- Kuhls Kuhls are water surface channels that are located in the mountains in Himachal Pradesh.
- Zabo The Zabo (meaning 'impounding run-off') system combines water conservation, forestry, and animal health.
- In practice in Nagaland Zabo is called the Ruza method.
- Rainwater that is deposited on the forested hillsides is collected through channels which deposit the water run-off in structures resembling ponds that are built on hillside terraces.

Topic 10. CHANGPA COMMUNITY

Important for subject: Geography

The Changpas lifestyle is experiencing disruptions and shocks

- Changthang plateau Cold desert on the Changthang plateau, which lies within the Himalayan and Karakoram ranges, which extends across and to Tibet is a bioculturally distinct area.
- The environmental conditions of the region, which include arid climate as well as dense vegetation, encourage pastoralists who live at high altitudes, and are not suitable for cultivation.
- It can be chilly at altitudes that range between 4500 and 7000 msl.
- It is made up of vast grasslands, Sand deserts, high altitude lakes like Tsokar, Tsomoriri, and Pangong vast marshy stretches and rivers like Hanle as well as Indus.
- It is the only breeding ground in India for the black-necked crane as well as bar-headed goose.
- It is also the is home to snow leopards and Pallas's cat. Tibetan grey wild ass (Kiang), Tibetan gazelle as well as argali, woolly Hare, Tibetan lark, among many more.
- The Changpa are semi-nomadic They usually reside in one location for several months at a time close to pastures where their yaks, sheep, and Pashmina goats can roam.
- They're usually located in the Changtang which is a high plateau that extends across

the desert cold of Ladakh.

- The process of moving from plains to mountain pastures during the summer and back from plains to pastures in the mountains in winter is known as transhumance.
- The Pashmina goat is a breed of goat that lives in the plateaus of Tibet, Nepal, parts of Burma and adjacent regions that are part of Ladakh located in Jammu as well as Kashmir, India.
- It's also known as 'Changthangi', or 'Changra".
- They are used to make ultra-fine cashmere wool. It is often referred to pashmina when weaved.
- Bureau of Indian Standards (BIS) has released the Indian Standard for identification, labelling and marking of Pashmina products in order to prove its pureness.
- The certification will stop the adulteration of Pashmina and safeguard the rights of the local nomads and artisans who produce Pashmina the raw material.
- It will also guarantee the pureness of Pashmina for the customers.
- There are some people who grow crops such as peas and barley however, they do it primarily for their own consumption and animal's consumption, and also to hold religious ceremonies.
- The Changpas were traditionally predominantly nomadic pastoralists who raise sheep, yak, goat and horses, to provide their food and for their livelihoods and trade in goods such as wool.
- The rotational grazing system: The Changpas follow an old-fashioned method of rotational grazing which ensures that the pastures are not overgrazed and helps to keep fodder available for the winter months.
- A variety of animal leaves manure that is added to the pastures and supports the diversity of micro-fauna as well as floral species.
- They go through five to six pastures during an yea. Each household does not make the final decision on how much pasture to move through.
- It is a decision taken by the entire group.
- A goba (village head) invites the yulpa (village assembly) for a gathering to confirm or change the season's movement. Along with the move towards pastures, amount of animals as well as the amount of family members per pasture are as well fixed.
- The impact of climate change The impacts of climate change include shrinking

glaciers, dry-up water springs and marshes that are less dense, and a decline in the quality of pastures.

- The diminished diversity and shifting the composition of livestock, with the increasing emphasis on Pashmina goats with wool that has a an excellent market value. This has resulted in a higher mortalities during winters with severe cold.
- They aren't as tough as yaks and sheep.
- The yak population has decreased which produce manure that is vital to keep the pastures healthy

Topic 11. INDIAN VIRTUAL HERBARIUM, BIGGEST DATABASE OF COUNTRY'S FLORA, IS A GLOBAL HIT

Important for subject: Geography

With information about around one lakh plant species, Indian Virtual Herbarium, the largest virtual database of plant species in the world is generating lots of attention and has proven to be a fascinating venture.

- Herbarium specimens are an important tool for taxonomy of plants conservation of habitat, habitat loss, and even climate change the prime minister Narendra Modi has recently outlined Indian Virtual Herbarium as an illustration for how the digital world could aid us in connecting with our roots.
- Created by scientists of scientists of the Botanical Survey of India (BSI),Kolkata.
- The herbarium offers information on plants belonging to different categories, like Cryptogams (spore producing plants). Phanerogams (seed bearing plants that bear seeds).
- The two groups are split into two categories, which includes genera, specimens, and types.
- Botanical Survey of India It is the top research institution that is part of the Ministry of Environment and Forests (MoEFCC) to conduct floral and taxonomic research on plants that are native to India.
- It was founded in 1890. It is comprised of nine regional circles that are located in various areas of the country.
- However , the headquarters are within Kolkata, West Bengal.
- Features: Exploration, inventorying and recording of phytodiversity in protected and

general areas Hotspots, fragile ecosystems and hotspots specifically.

- Publishing of National, State and District Floras.
- Identification of threatened and red-list species and areas of biodiversity that require conservation.
- Conservation of ex-situ threatened plant species within botanical gardens.
- Study and documentation of the tradition-based knowledge (ethno-botany) related to plants.
- Develop a National databases for Indian plants, which includes live specimens and herbariums, illustrations and paintings of botanical plants and more.
- Botanical Survey of India- Key Initiatives BSI has Floristic surveys of a variety of Indian states as well as Union territories. The survey of flowers in protected areas of 68 and 26 sacred groves 01 Ramsar site 12 fragile ecosystems, and the 23 Tiger Reserves have been completed.
- To fulfill to meet the Global Strategy for Plant Conservation goal of ex-situ conservation the department has 12 botanic gardens located in various biogeographical zones throughout the country.
- BSI has also come up with an online platform called the Indian Plant Diversity Information System (IPDIS)'.

Topic 12. CREATURES THAT CROSSED AN OCEAN TO FIND INDIA

Important for subject: Geography

A bat species as well as an early lemur(IUCN Endangered) have been discovered within the Gujarat's Vastan mining of lignite.

- A variety of life forms found that live in Madagascar are akin to lines discovered in India (3,800 kilometers away) as opposed to Africa (413 kilometers).
- This was a 'difficult mystery to naturalists.
- The Zoologist Philip Sclater was perplexed by the lemurs' presence as well as their cousins, and their fossils found in Madagascar and India however, not in the nearby region of Africa and in the Middle East.
- Continental drift in plate tectonics, the massive rock plates we stand on are floating on subterranean molten rocks, and shift 2-15 centimeters per year one another.
- A large landmass, known as Gondwana divided into two about 165 million years ago.

One of them contained the present Africa in the present day Africa and South America, the other consisting of India, Madagascar, Australia and Antarctica.

- About 11 million years ago Madagascar together with India together were able to break free.
- About the time of 88 million years ago India moved to the north, shedding some parcels of land to create Seychelles.
- It was part of the Eurasian mass about 50 million years ago and gave birth to the Himalayas, and South Asia that we are familiar with.
- About 11 million years ago, it was dinosaurs who were in charge. The majority of living things had not developed.
- Assisting the Gondwana breakup Dinosaur fossils found on India as well as Madagascar are closely related and are not similar to species that are found elsewhere in Africa or Asia.
- Fragments of Laplatosaurusmadagascarensis have been found in both India and Madagascar.
- Molecular clocks An effective technique called the molecular clock is used to calculate the moment when two types that are living diverged one another.
- This is in response to the idea that evolutionary changes to the sequence of an RNA protein molecule take place in a relatively constant manner.
- The differences in amino acids in, for instance, the haemoglobins of two animals will reveal the time when their linesages split.
- The atomic clocks are well-corroborated by other evidence like fossil evidence.
- India's central position India is a key player in the life-form distribution throughout Asia, Madagascar and Africa.
- Gondwana creatures were evicted from India some crossed over and stayed. For instance, Asian freshwater crabs (Gecarcinucidae) are found today throughout Southeast Asia but their most recent common ancestor was found in India.
- The Frog group, Sooglossidae, is found only in India and the Seychelles In India there are the Lorises, which are the closest relatives that exist to the lemurs.
- They are timid night-time forest dwellers with attractive, large eyes. It is also believed that they have survived ocean voyages from Africa.
- They are found mostly within areas of the Northeastern States (slow loris)(IUCN:

Endangered) and in the areas in the areas where Karnataka, Kerala and Tamil Nadu meet (slender loris) (IUCN Endangered).

Topic 13. STUDY OF ROCK AGAMA GIVES INSIGHTS INTO URBANISATION AND CONSERVATION

Important for subject: Geography

It is the Peninsular Rock Agama (Psammophilus dorsalis) is a species of garden lizard, has a significant presence in the southern part of India.

- This IISc study, which was published in Frontiers in Conservation Science looked at a variety of environmental factors that can influence the appearance of the lizard. It also revealed that they live primarily in warm and rocky areas.
- Therefore, it is evident that conservation efforts should be directed towards the preservation of rocky areas when restoring landscapes through planting trees.
- Lizards feed on insects, and are consumed by snakes, raptors and dogs. They are unable to reside in areas that do not have insects.
- This lizard is an enormous animal that is strikingly coloured with black and orange.
- They don't generate body heat therefore they have to find warmth from outside sources such as an ice-cold rock or a sun-filled wall.
- They are crucial in ecological systems from a variety of angles.
- They can tell the areas in the city that are warming and the numbers indicate how the food web is changing.
- Insects are essential to the ecosystem because they perform a myriad of functions which include pollination.

- Thus, although rocks agamas are fascinating by their own right, they also serve as an excellent model system to comprehend different aspects within the ecosystem.
- Ectotherm Ectotherm is any of the cold-blooded animal, that is an animal whose control of body temperature is dependent on external sources like the sun or a surface heated by a rock.
- The ectotherms are reptiles, amphibians and fishes and invertebrates.

Topic 14. ENERGY CONSERVATION LAW TO GET A NEW LOOK

Important for subject: Environment

The Energy Conservation (Amendment) Bill 2022 seeks to make it mandatory to use non-fossil resources, including biomass and ethanol, for energy and feed stocks, in addition to the utilization of green hydrogen as well as green ammonia.

- The plan also proposes to expand the coverage of Energy Conservation Building Code and include large residential structures within the energy conservation regulations.
- The Energy Conservation Act, 2001 was amended last year 2010, to address a number of new issues that emerged from the evolution of the market for energy over time and to ensure the most efficient and efficient use of energy as well as its conservation.
- To enable the state commissions for electricity regulation the bill would permit commissioners from the state to create rules regarding the submission of requests to the commission as well as the charges to be paid.
- The bill also allows the state government to set regulations regarding the fees that are charged for services provided by designated agencies encouraging efficient use of energy and conservation, as well as the creation of the budget for the agency designated.
- A legal framework to create carbon markets with the aim of promoting actions to reduce emissions, leading to increased investment in areas of energy efficiency
- Alongside the plan to increase the number of members in the body that governs the Bureau of Energy Efficiency, the bill intends to give the Bureau to establish regulations for the agency that could be competent to fulfill the functions of the Bureau as well as the technical qualifications required to conduct tests on samples.
- The bill further stated that state governments should establish an account to be known as the "State Energy Conservation Fund" in order to encourage the use efficiency in

energy use and the conservation of it throughout the entire state.

- The fund will be credited with grants and other funds from the government of the State, Centre and any other organization or person
- In the framework of regulation to regulate carbon trading the federal government, or any agency authorised by it can issue a carbon credit certificates to any authorized entity that meets the rules in the scheme for carbon trading.
- The entity that is registered will be authorized to purchase or sell carbon credit certificates as per the trading schemes for carbon credits.
- The amendment is designed to build on the work done to date.
- As with the standards for appliances and equipment the energy consumption standards will be defined in the case of motor cars, vessels, and other vessels in the water as well as industrial units and buildings.
- Government officials will also be able to ban the production or importation of automobiles or watercrafts that don't meet the energy standards that are prescribed.
- Each building, whether commercial, industrial or residential -- that exceeds the same energy consumption will be required to comply with the latest green building standards.
- The buildings will have in order to make sure that at a minimum some of their energy use is derived from renewable or non-fossil energy sources.
- India has had a plan to reward energy efficiency more than a decade.
- The program, which is run through BEE, the Bureau of Energy Efficiency (BEE) is known as PAT (perform to achieve, complete and trade) and permits units to receive efficiency certificates when they surpass the standards for efficiency that are set by.
- The ones who aren't doing well can purchase these certificates to ensure they continue to operate.
- Carbon markets in the region or at home However, they are operating across a range of locations -- especially in Europe in which the emissions trading system (ETS) is based with a similar National Hydrogen Energy Mission (NHM) about The National Hydrogen Energy Mission: Concentrate on the production of hydrogen from renewable energy sources.
- To link India's expanding renewable power capacity with an economy based on hydrogen.

- India's ambitious target of 175 GW by the year 2022 was given some momentum by the budget of 2021-22 that included an amount of Rs. 1500 cr to the development of renewable energy as well as NHM.
- Hydrogen usage will not just assist India in meeting its emissions targets under the Paris Agreement, but will help reduce dependence on imports from fossil fuels.
- Hydrogen The element Hydrogen is the lightest and the first element on the periodic table.
- Because hydrogen's weight is lower than that of air, it is able to rise in the air and is not often found in its pure form. H.
- At normal pressure and temperature hydrogen is a non-toxic, non-metallic and tasteless, odourless extremely combustible and colourless diatomic gas.
- The fuel Hydrogen is non-emitting combustion fuel made with oxygen.
- It is used in fuel cells as well as internal combustion engines.
- It can also be used fuel for spacecraft propulsion.
- The type of hydrogen is Grey Indian's main source of production. It is extracted from hydrocarbons(fossil fuels natural gas, fossil fuels).
- By product CO Blue Hydrogen: Derived through fossil-fuels.
- Product: CO, CO By products are stored and captured and are therefore better than grey hydrogen.
- Green Hydrogen: Produced by renewable energy sources (like Solar, Wind). Electricity converts water into oxygen and hydrogen.

Topic 15. INDIA'S HIGHER CLIMATE TARGETS

Important for subject: Environment

INDIA'S CLIMATE TARGETS: EXISTING AND NEW

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

Two key ingredients of Modi's Glasgow Panchamrit are now official goals.

- The targets of reducing emissions intensity, as well as increasing the percentage of non-fossil-fuels in electricity generation seems to be a difficult task to reach India's NDC and national commitments. The NDC has been revised with the two pledges that are improvements to current targets and will be presented for consideration by the UN climate body.
- The Paris Agreement requires every country to establish self-determined climate goals that must be gradually revised with more ambitious targets every couple of years.
- The first NDC was presented in the year 2015 just prior to when the Paris Agreement was finalised.
- Two promises Modi was able to make in Glasgow are not yet translated into targets for the government.
- The Prime Minister had declared that India's generation capacity will reach 500 GW by 2030.
- He also had stated that India will cut at minimum one billion tonnes of carbon dioxide equivalent out of its projected emissions from now until 2030. Both of these promises were a bit elusive.
- The 500 GW non-fossil energy electricity capacity goal for 2030 isn't an easy task.
- Of the total installed power of 403 GW more than 236 GW which is 58.5 percent, is

derived from fossil fuel sources and non-fossil energy sources comprise not just renewables such as wind and solar but also nuclear power, hydropower and other sources, comprise just one-third of the.

- Capacity increases from non-fossil sources will need to double within about 10 years in order to get to the 500 GW target.
- The installed capacity for electricity has increased by more than a third over the past 10 years (from the 199 GW of 2012 up to 403GW today) however, it's not just due to fossil fuels that are not used for electricity.
- Although renewable energy has seen significant growth, capacity installed from fossil fuels have doubled during this time.

Topic 16. PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW

Important for subject: Environment

General Principles of Environmental Law:

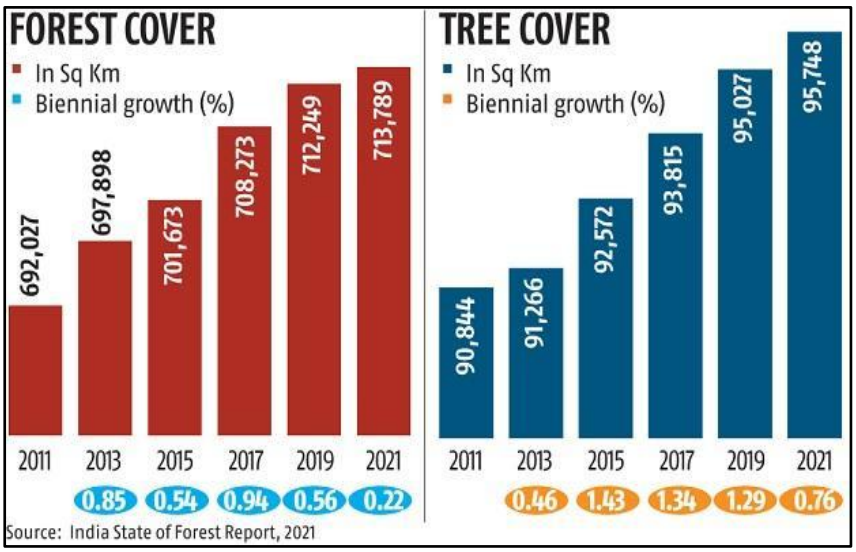
- Sovereignty and the Responsibility Principle International Environmental law evolved from two contradicting concepts.
- The principle that is first is that states have sovereign rights to the natural resources they possess.
- In the second, states should be careful not to cause harm to the environment.
- But, the notion of sovereignty isn't absolute and the state's primary obligation is not to create environmental damage in the environmental conditions of neighboring states.
- The 1992 Rio Declaration stated that: "states are granted, in compliance with international law principles the sovereign right use their resources in accordance to their respective development and environmental policies and have the obligation to ensure that the activities under their area of control or authority don't cause harm to the natural environment in states or in areas that are not within the boundaries of their national control
- The Precautionary Principle This principle states that, if there is a high probability that an activity could result in environmental harm It is preferential to stop the activity right immediately rather than wait for scientific proof that is incontrovertible.
- This principle is outlined by the Rio Declaration, which stipulates in principle 15 of the Rio Declaration, where there are "threats of irreparable harm, the absence of

scientific certainty should never be used to justify a basis to delay the implementation of cost-effective measures that stop environmental degradation

- The Principle of Prevention Principle In this principle states are under the obligation of preventing any damage that occurs within its territory.
- The cost of preventing environmental damage is lower more simple, less time-consuming, and safer for the environment rather than responding to damage that already occurred.
- The principle of prevention is the principle that underlies laws that regulate the production and transportation, treatment, storage and disposal of hazardous waste as well as laws that regulate how pesticides are used.
- The "Polluter pays" Principion "Polluter Pays" Principle "polluter is the one who pays" principle has long been a major idea in environmental law.
- A state that is responsible for violating international law must cease the harmful conduct that could cause damage to the environmental conditions and then rectify the damage which existed before the unlawful act.
- In this case, when the state is not able get the condition back due to the impossibility of it the state must provide compensation.
- Sustainable Development Principle. The principle of sustainable development was established by the 1987 Brundtland Reports as a method of development that meets the requirements of the present while not impairing the capacity of the next generations to satisfy their own demands.
- A sustainable approach to development, expressed in international agreements, includes at least three aspects:
- Equity intergenerational
- Sustainable utilization of natural resources
- Integration of development and environment.

Topic 17. INCREASING THE FOREST COVER

Important for subject: Environment



Forest cover status: In the India State of Forest Reports released by the Ministry indicates that at the national scale, forest cover has grown by 21,762 sq km in the last decade.

- There isn't any trend of decreasing in the area of forest cover in the country. According to the most recent ISFR 2021 total forest cover in the nation has grown by 12,294 square kilometers over the past 7 seasons (ISFR 2015 ISFR 2021).
- Actions taken for afforestation purposes by MOEF&CC Green India Mission (GIM) is an Centrally Sponsored Program, which is one of eight Missions listed in the National Action Plan on Climate Change.
- It is aimed at protecting improving, restoring and protecting India's forest cover as well as reacting to Climate Change by undertaking plantation actions in the forest as well as non-forest zones.
- Nagar Van Yojana (NVY) It was launched in the year 2020, and is aimed at creating 400 Nagar Vans and 200 Nagar Vatika in the country in the years 2020-21 until 2024-25.
- It is a part of a plan to substantially increase the amount of tree outside forests and the green cover, enhancing biodiversity and environmental benefits to urban and periurban regions as well as improving the living standards of urban dwellers by utilizing the money from the National Fund of the Compensatory Afforestation Fund Management and Planning Authority (CAMPA).
- "School Nursery Yojana' (SNY) is being implemented from the year 2020 , for the

duration of five years, in which students from the classes of Sixth, Seventh and Eighth are enrolled in all private and public schools run in the form of State Boards/ Central Government

- Boards across the country are actively involved in the creation of nursery facilities plant seedlings, raising them and planting them as part of the school program.
- Other: Activities related to afforestation are also covered by diverse funding sources like Mahatma Gandhi National Rural Employment Guarantee Scheme, Compensatory Afforestation Funds under the Compensatory Afforestation Fund Management and Planning Authority (CAMPA).

Topic 18. IS INDIA'S BIODIVERSITY GETTING EXPLOITED WITHOUT BENEFITS TO COMMUNITIES?

Important for subject: Environment

Biodiversity Data on the website of the National Biodiversity Authority (NBA) provides evidence that 56.1 percent of applications that have been approved through the Authority under the access and benefit sharing system in 2006 were between the fiscal years 2020-2021, and 2021-2022.

- Access and Benefit Sharing Clearing House (ABSCH) The Access and Benefit-sharing Clearing House (ABS Clearing House, ABSCH) is a platform for sharing information about benefits and access that was established in article 14 in the Nagoya Protocol, as part of the clearing-house mechanism set out in Article 18 Paragraph 3 of the Convention.
- The ABS Clearing-House is a key instrument to facilitate an effective implementation of Nagoya Protocol by enhancing legal certainty, transparency and clarity regarding access procedures and to track the utilization of genetic resources throughout the value chain.
- Through making pertinent information about ABS accessible The ABS Clearing-House helps users access the genetic resources, as well as the traditional knowledge, as well as help those who provide them fairly and fairly get the benefits from their use.
- Biological Diversity Act 2002 The act was passed in the year 2002. It aims to ensure conserving the biological resources, ensuring the sustainable use of them as well as ensuring fair and equitable sharing of benefits due to the knowledge and use of

biological resources with local communities.

- India is also among the first signatories to the Convention on Biological Diversity 1992 which recognizes sovereign right of states to make use of the resources of their Biological Resources.
- Important Features in the Act
- The Act prohibits the following acts without the prior approval of the National Biodiversity Authority: Any individual or organization (either situated within India and not) seeking any biological resource found in India to conduct research on it or for commercial use.
- Transfer of the results of any research related to biological resources found in, or derived from India.
- The assertion of intellectual property rights over any invention that is based on study of the biological resources that are derived from India.
- Every offense that is a result of the Act is not a crime that can be prosecuted and is not a criminal offence The Act envisaged three levels of structure to regulate the use of biological resources. National Biodiversity Authority (NBA) The State Biodiversity Boards (SBBs) The Biodiversity Management Committees (BMCs) (at local levels) The Act grants these authorities specific funds and a separate budget for carrying the research projects that deal with the natural resources of biological nature of the country.
- It will supervise the usage of natural resources and their sustainable use and will control the financial investments as well as their return , and get rid of the capitals in the manner that is appropriate.
- In this law under this act, it is the Central Government in consultation with the NBA shall inform endangered species of their threats and prohibit or limit their collection rehabilitation and conservation. Designate institutions as repositories of different kinds of biological resources. Any complaints relating to the decision of benefit sharing, or an order from or order issued by the National Biodiversity Authority or a State Biodiversity Board under this Act will be referred before the National Green Tribunal (NGT).
- National Biodiversity Authority In order to implement the provisions of the Act to implement the provisions of the act, it was established the National Biodiversity

Authority (NBA) was set up within the Ministry of Environments and Forest by the Government of India in 2003 to take on the Indian Biological Diversity Act (2002).

- The NBA is an autonomous, statutory entity with its headquarters in Chennai.
- State Biodiversity Boards (SBB) were also established in 29 states, along with biological management committees for each local entity.
- The responsibilities for National Biodiversity Authority are as follows: National Biodiversity Authority are as follows: Monitoring and prevention of actions that are not permitted under the Act.
- Offering suggestions to the government about the best way to preserve the biodiversity of India.
- Create a report about what the state can do to choose bio-diversity sites to.
- Take concrete steps to stop the granted to intellectual property rights in relation to biological resources that are locally utilized or other traditional knowledge.
- State Biodiversity Boards (SBBs) The SBBs were established by the state governments according to Section 22 under the Act.
- Biodiversity Management Committees (BMCs) In accordance with the provisions of Section 41 of the Act that every local body must form the BMC within its boundaries with the aim of encouraging conservation sustainable use, and the documentation of biodiversity. This includes conservation of habitats, preservation of habitats, of folk varieties of the Landraces and cultivars Domesticated breeds and cultivars of animals Microorganisms and the Chronicling of information related to biological Diversity Essential Functions The principal purpose for BMC BMC is to develop the People's Biodiversity Record through consultation with the local population.
- The register should contain complete information about the availability and quality about local resources in the field of biology and their medicinal, alternative use, or any other.
- Biodiversity Heritage Sites (BHS) In accordance with Section 37 of Biological Diversity Act 2002, The State Government in consultation with local bodies can declare zones of importance to biodiversity to be designated Biodiversity Heritage Sites.
- The Biodiversity Heritage Sites are defined areas that are distinct and ecologically fragile ecosystems coastal, terrestrial and inland waters as well as marine areas with

an abundance of biodiversity. Nagoya Protocol The Nagoya Protocol on Access to Genetic Resources and the fair and equitable Sharing of the Benefits arising from their use in connection with the Convention on Biological Diversity, also called the Nagoya Protocol on Access and Benefit Sharing (ABS) is an amendment that was signed in the year 1992 to amend the Convention on Biological Diversity (CBD).

- Its goal is to achieve the fulfillment in one or more of the 3 main objectives of the CBD which is the fair and equitable distribution of the benefits resulting from the use of natural resources thus aiding in the conservation and sustainable utilization of biodiversity.
- Acceptance of the Nagoya Protocol by 51 Parties including India to the CBD is a significant move towards achieving the initial of the world's Aichi Biodiversity Targets (Target 16 which is to be achieved by the year 2015 when it will be the year that the Nagoya Protocol is in force and operational) This is over a year prior to its deadline this is a first for the world.
- The key part that was played by India in the achievement of this amazing feat again highlights the world's leading position in biodiversity conservation globally.

Topic 19. PEACE PARKS AS A TRANS BOUNDARY APPROACH TO CONSERVATION

Important for subject: Environment

Biodiversity Conflicts over borders that are being exacerbated by climate change, have put certain of the world's most important biodiversity hotspots in danger.

- Even in the countries which have escaped border wars the global effort of building fences that aims to keep out humans who are increasing in the midst of increasing temperatures and political turmoil causes massive damage to habitats and animals that migrate.
- In areas of potential conflict like those of the Himalayas, Eastern Europe, the Caucasus along with in the South China Sea, this ever-growing human migration across national boundaries has resulted in violence and sometimes to war.
- Border-straddling conservation zones referred to as peace parks are the most sustainable approach to dealing with border disputes, rather than militarization or fence construction. Peace parks along the U.S.-Canada border as well as in the Himalayas are an example of success.

- Today four international peace parks stand on the other side of the boundary: Peace Arch Park (Washington/British Columbia) and Waterton Glacier International Peace Park (Montana/Alberta); International Peace Garden (North Dakota/Manitoba) and Roosevelt Campobello International Park (Maine/New Brunswick).
- Peace Parks Peace Parks "Park to Peace" can be a distinct designation that could be used to refer on any one of three kinds of Trans boundary Conservation Areas, and is committed to the celebration, promotion and/or celebration of cooperation, peace and peace (IUCN 2015).
- The protected areas can contain a variety of types of land use within their boundaries.
- The three main objectives of trans boundary protected zones typically include the protection of the biodiversity and socioeconomic growth and the development of a peace-based culture and co-operation.
- The designation and identification of Peace Parks by cooperating jurisdictions should only include those areas in which the established management objectives clearly define both a protected area as well as a no-conflict zone.

Topic 20. INDIA'S UPDATED CLIMATE PLEDGE TO PARIS AGREEMENT

Important for subject: Environment

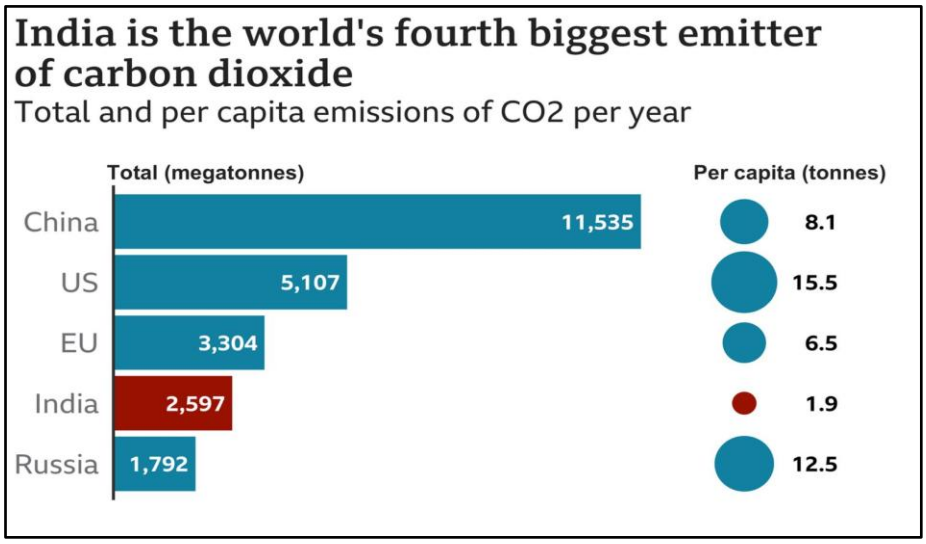
India's latest climate pledge in line with that of the Paris Agreement received the Union Cabinet's approval on August 3rd, 2022.

- Paris Agreement The Paris Agreement is a global agreement in which more than 200 countries have signed a deal to work together to cut GHG emissions and limit climate changes.
- The aim of the agreement is for a limit on global warming of less than 2 degrees Celsius, and preferably 1.5degC in comparison to pre-industrial levels.
- Thirty days from the date at least 55 parties to the Convention representing at least 55 percent of worldwide greenhouse gases emissions, have filed documents of ratification acceptance, acceptance or adhering to the Depositary.
- On October 5, 2016, the minimum threshold for the entry in force for the Paris Agreement was achieved.
- The agreement entered into effect on November 4 in 2016, currently includes the signatures of 188 parties.

- The pledges made by nations to reduce emissions are voluntary and are referred to as Nationally Determined Contributions (NDC) All Parties are required by law to report periodically on their emissions as well as on their efforts to implement them.
- It will also be a global inventory take every five years to evaluate the progress of the entire community toward achieving the goals that is the purpose of this Agreement and also to inform individual actions of the Parties.
- In accordance with the provisions of the Paris Agreement, nations must update their commitments every five years in order in order to meet their obligations in the direction of the reduction of greenhouse gas (GHG) emission reductions.
- India's INDC The first India-specific pledge which was also referred to by the name of India's Intended Nationally Determined Contribution (INDC) that was made in 2015, contained three main targets.
- It says it is expected that India will reduce the emission in its economy by about 33 to 35 percent by 2030 over the levels in 2005; increase the percentage of electricity generated from non-fossil fuels up to 40 percent by the year 2030 and also increase the forest cover, thus absorbing 2.5 or 3 billion tonnes of carbon dioxide.
- Progress of India In June 2022, the cumulative installed power capacity of non-fossil sources is 7 percent cent (when including hydropower projects of large size).
- The installed capacity of fossil fuels such as gas and coal is expected to fall to 36 percent in 2030.
- India has attained 25 per cent emissions intensity reduction in GDP from 2005 to 2016 and is currently on a track to surpass 40 percent in the next update to the INDC
- The two targets will be submitted at the UNFCCC as India's revised NDC in the form of a written.
- India has now determined to reduce the intensity of its emissions on its gross domestic product by 45 percent in 2030, compared to its 2005 levels, in accordance with the most recent NDC.
- The country is also planning to target approximately 50 percent of its total electric power capacity from non-fossil-based energy sources in 2030 (which includes large hydropower, and not only sources of renewable energies (RE) sources such as the sun and wind)

Topic 21. POWER MINISTRY INTRODUCES BILL TO ESTABLISH CARBON MARKET IN INDIA

Important for subject: Environment



Climate change power minister RK Singh on Wednesday introduced the Energy Conservation (Amendment) Bill 2022 in the Parliament. The bill will allow for the creation of Carbon markets.

- Additionally the above, the Bill is also seeking to require using non-fossil fuels that include green ammonia, green hydrogen as well as biomass and ethanol to produce energy and feedstock.
- Other changes included in the Bill include the inclusion of large residential buildings into the scope within the conservation program and expanding the scope of Energy Conservation Building Code, and strengthening the governing body of the Bureau of Energy Efficiency.
- The Energy Conservation (Amendment) Bill will make it compulsory for all buildings that have an energy consumption of 100 kW, to meet their energy requirements using renewable sources
- Through the adoption of energy efficiency measures Bureau of Energy Efficiency The BEE is a statutory organization created by the Energy Conservation Act, 2001 under the supervision of the Union Ministry of Power.
- It aids in the development of strategies and policies with the main goal of reducing energy use in India's economy. Indian economy.
- BEE collaborates with consumers, designated agencies and other organizations to

determine and use the infrastructure and resources in carrying out its tasks.

- It is a part of the Ministry of Power. Energy Conservation Building Code (ECBC) 2017: developed by the Ministry of Power and Bureau of Energy Efficiency (BEE), ECBC 2017 prescribes the energy efficiency standards for commercial buildings that are that are to be constructed in India.
- It establishes the minimum energy standards for all commercial buildings that are new and have an energy load that is 100 kW (kilowatt) or a contract demand that is 120 KVA (kilovoltampere) or more.
- The EC Act of 2001 gives the Central Government Government authority, however, state governments have the option to modify the law to meet specific local or regional needs and also to inform to the Central Government of any changes.
- ECBC 2017 was created through BEE with technical assistance from the United States Agency for International Development (USAID) under the U.S.-India bilateral Partnership to Advance Clean Energy - Deployment Technical Assistance (PACE-DTA) Program.
- Eco Niwas Samhita 2021: It's an Energy Conservation Building Code for Residential Buildings (ECBC-R) to add a new boost to India's efforts to conserve energy.
- It outlines code compliance methods as well as minimum energy performance requirements for building services and a verification framework that is compatible with Eco Niwas Samhita 2021.

Topic 22. EUCALYPTUS, ACACIA AND TEAK, NOT SAL: WHY CAG IS CRITICAL OF ODISHA'S AFFORESTATION EFFORTS

Important for subject: Environment

Conservation There was a severe deficit in meeting planting targets in Odisha due to a lack of coordination, a working plan and inadequate choice of plantation locations and plants Odisha's forest coverage was estimated at 51,619 square kilometresor 15% of the state's geographic surface, according to the India State of Forest Report 2019.

- From the total of 1,187 plantation journal journals that were selected for audit, 491 were scrutinized in accordance with the Compensatory Afforestation Fund Act (CAMPA) in 2016.
- The report further stated that even though Sal is the main indigenous species in Odisha Acacia, teak and eucalyptus were planted in the state as important species,

impacting the indigenous plant life and biodiversity of the state.

- India State of Forest Report 2021 Ministry of Environment, Forests and Climate Change (MoEFCC) has published this report. India State of Forest Report (ISFR) 2021.
- The biennial report of the Forest Survey of India (FSI) is an evaluation of India's forest resources.
- Highlights from the Report: India's forest cover has grown by 2,261 square kilometres in the last two years , with Andhra Pradesh growing the maximum area of forest that covers six47 sq km.
- The total forest cover of the country has increased by of 1,540 square kilometers of forest cover and 721 square km of forest cover when in comparison to the report for 2019.
- The total forest and tree cover is distributed over 80.9 million hectares. This represents 24.62 percent of the total surface of the country.
- The five states with the highest percentage of the increase in forest cover include Andhra Pradesh (647 sq km), Telangana (632 sq km), Odisha (537 sq km), Karnataka (155 sq km) and Jharkhand (110 sq km).
- The increase in forests or an increase in the density of forest canopy could be attributable to better conservation measures such as protection, afforestation as well as tree plantation drives, and Agroforestry.
- Of all the mega-cities in this country Ahmedabad was the largest loser in terms of forest cover.
- States with the highest forest cover. Area-wise, Madhya Pradesh has the largest forest cover in the nation and is followed by Arunachal Pradesh, Chhattisgarh, Odisha and Maharashtra. 17 states and UTs cover more than 33 percent of their land area covered by forest. In those states as well as UTs Lakshadweep, Mizoram, Andaman and Nicobar Islands Arunachal Pradesh, and Meghalaya contain more than 75% percent forest cover.
- Forest cover in proportion of the space: Mizoram, Arunachal Pradesh, Meghalaya, Manipur, and Nagaland.
- Mangrove coverage in the country: There's an additional 17 square km of mangrove coverage in the country in comparison to the previous assessment in 2019.

- The total mangrove area in the nation is 4,992 sq km. Sixty-three states with the highest mangrove coverage increases include Odisha (8 square kilometers) then Maharashtra (4 square kilometers) along with Karnataka (3 square kilometers).
- Carbon stocks: The carbon stock of the nation's forests is estimated at 7,204 million tonnes. This are an additional 79.4 million tons in carbon inventory of the nation as when compared with the previous review of the year the year 2019.
- The annual increase in carbon stocks amounts to 39.7 million tons.
- Forests prone to fires 46% of the forest cover is susceptible for forest fires. 81% are extremely susceptible, 7.85% are very extremely prone, and 11.51 Percent are highly susceptible.
- In 2030, between 45 and 64 percent of the forests within India will suffer the consequences of warming temperatures and climate change. For all states, forests (except Assam, Meghalaya, Tripura and Nagaland) are highly susceptible to climate hot places.
- Ladakh (forest forest cover 0.1-0.2 percent) is most likely to be the area most affected.
- Bamboo Forests Bamboo forests increased from 13,882 million curms (stems) in the year 2019 to 53,336 million culms by 2021.
- Problems in the north-east region did not have positive results, as the latest assessment revealed the forest cover was decreasing to the size of 1,020 sq km within the region.
- Arunachal Pradesh lost the largest forest area of 257 sq km. It was then Manipur that lost the most area of 249 square kilometers, Nagaland 235 sq kilometers Mizoram with 186 square kilometers and Meghalaya 773 sq km. In all 140 hill districts across the country in the last two years, the forest cover decreased by 902 square kilometers in the past two years.
- In the report of 2019, the forests in the hills had been increased by 544 sq kilometers.
- Compensatory Afforestation Fund The CAF Act was approved by the center in the year 2016 and the rules were announced in the year 2018.
- The CAF Act was enacted to oversee the collection of funds to pay for compensatory afforestation. It then was administered by an the Compensatory Forest Fund Ad-hoc Administration and Plan Authorities (CAMPA).

- Compensatory afforestation refers to the fact that each when forest land is diverted to non-forest uses, such as mining or industrial production the user agency is responsible for the planting of forests over the same area of non-forest landor, when the land isn't available, the land is divided into two areas of forest land that has been degraded.
- According to the rules according to the rules, 90% of CAF money must be distributed to states, while the remaining 10% is to be kept from the Centre.
- The funds could be used to treat catchment areas, natural generation as well as for the management of forests, wildlife protection and management, the relocation of villages away from protected areas, controlling human-wildlife conflicts, education and awareness-raising, distribution of wood-saving devices and similar actions.

Topic 23. IMF-EXTERNAL SECTOR REPORT

Important for subject: Economy

The International Monetary Fund (IMF) recommended that India reduce its the fiscal and monetary stimulus gradually in the External Sector Report.

- It is forecasting the current account deficit of India (CAD) to grow by 3.1 percent of its GDP in FY23 , from 1.2 per cent of GDP for FY22.
- It will stabilize in the long term. The net investment portfolio of India (NIIP) has increased to -11.1 percent of GDP, up from -13.5 per cent of its GDP as of close of 2020.
- Gross foreign liabilities and assets totaled 30.5 percentage of GDP, and 41.7 percentage of GDP respectively.
- The majority of assets were comprised of reserve and (outward) FDI, whereas the liabilities comprised the majority of FDI along with other types of investments.
- External debt obligations of India are not as high as those of its others since it is focusing principally on getting FDI instead of the unstable FPI.
- India's official reserves for forex hit the record level of $638.5 billion by the end of 2021, based on the current surplus in the account.
- The reserves dipped in the following months but were still at a level that was comfortable considering that there were eight months worth of coverage for imports and 223 per cent in short-term loans (on remaining maturity) and 195 percent from the composite measure.

- Suggestions to ensure that the external sector is in balance over the medium term:
- India requires the development of export infrastructure.
- Sign Free Trade Agreements with important trading partners to increase exports. More liberalization of the investment policy.
- Reduced tariffs, particularly on intermediate products.
- Gradual withdrawal of fiscal as well as stimulative monetary policy.
- The flexibility of exchange rates should serve as the principal shock absorber with minimal intervention for market instability.
- The concept: Fiscal and Monetary Policy Stimulus: Generally speaking, the stimulus measures are designed to stimulating demand, either through spending by the government on its own account or increasing the disposable incomes of households by tax concessions or cash transfers.
- It helps boost confidence in businesses and helps restart projects that have been stalled. It aids in job creation and kicks off a positive cycle of growth and demand.
- Both Monetary and fiscal stimulus packages are released in times of recession or when production or levels of employment are at or below their sustainable levels.
- Fiscal stimulus is the term used to describe an increase in consumption by the government or decreasing taxes.
- In the case of the COVID-19 pandemic, the federal government announced a fiscal stimulus program that was worth the amount of Rs. 20 Lakh crore. Monetary stimulus is the term used to describe lowering rates of interest or other methods to increase the amount credit or money.
- Fiscal stimulus Monetary stimulus is a government-controlled policy that involves adjusting taxes and spending by the government to boost the economy.
- This monetary stimulation is managed by central banks to regulate the economy by altering the amount of money that is available and the costs to borrow i.e. the interest rate.
- The government utilized the fiscal stimulus programs to affect overall supply and demand through cutting taxes while also increasing spending and encouraging growth in the economy.
- A Monetary stimulus is a method that central banks use to control the flow of money within the country.

- The most important tool for the monetary stimulus is to lower the interest rates.
- Fiscal stimulus is implemented by the government via direct spending and increases the process of hiring to encourage growth and employment.
- Monetary stimulation works in the following ways : promoting companies to invest through reduction of interest rates on marketing.
- Increase the amount of money available by injecting more money into the economy. Fiscal stimulus packages are the best option to boost demand and economic activity during a recession.
- A monetary stimulus can help put more money in the pockets of people during times of recession.
- What is the reason it should be removed?
- According to the Tobin Funnel model, a nation has access to two taps, one tap is for net government expenditure and the other for the supply of money.
- The water flows through a funnel, which is typical, into the tank below.
- Once the tank underneath the funnel is full and it is overflowing, it takes the form of inflating.
- The additional borrowing by the government creates massive public debt. In the instance of India the bond market thinks that the central government's borrowing plan for the fiscal year to come is excessive.
- Additionally there is also inflation. RBI is the inflation-controller of the economy, as well as a debt manager.
- It places RBI in the position of having to decide which is whether it should increase interest rates to combat inflation or hold them at a lower level in order to fund the government's budget.
- Therefore, in light of the increasing inflation and the limits on financing debt, the stimulus must be removed slowly.
- Report on the External Sector External Sector Report It analyzes global developments in the external sector and provides multilaterally coherent assessments of the positions on the outside of the world's top economies, accounting for over 90 percent of GDP worldwide.
- The report comprises an overview chapter which is focused on multilateral issues and an analytical chapter that examines topics that are that are relevant to the study of

sector dynamics in the external market and mechanisms for adjustment as well as a concluding chapter that details the external assessments on each of the thirty economies examined.

- The External Sector Report, produced every year since 2012, is one of the most important aspects of the IMF's monitoring.

Topic 24. RBI MONETARY POLICY & OBICUS

Important for subject: Economy

The MPC has increased the repo rate in total by 140 bps during the May-August 2022 time frame from 4 percent to 5.40 percent in order to curb the rate of inflation while balancing that allows growth to the economy.

What is the reason for the increase?

- The RBI hopes in bringing inflation down to the desired 4 percent (+-2 percent) with inflation currently over the 6% tolerance limit for six consecutive months.
- How do you be able to control the rise in inflation?
- Repo rate is what rate the RBI lends commercial banks.
- When interest rates rise the money becomes more costly which results in less demand for goods and services, as well as decreasing the rate of inflation.
- What impact will it have on the depositors and borrowers? Both depositors and borrowers are likely to experience an increase in interest rates and an increase the deposit rate, and vice versa.
- The rise in rates of deposit will raise the ratio of currency to deposit and, consequently, decrease the amount of money in the economy.
- The loan rate will rise, and with it so would the EMI on the same loan.
- This could be a major blow to the vulnerable, and particularly the fixed income groups.
- What are the implications of the decision to end the accommodative policies?
- It can result in either a soft or hard landing for the economy based on the extent of the following impact:
- The market operations of the RBI had resulted in a drop of liquidity i.e.money quantity and inflation
- It will increase the rates of deposit to currency, which would in turn increasing the

amount of money available through banks which can lead to "credit off take" i.e. credit supply.

- This would decrease consumer demand of goods and other services, as well as investment demand due to the expense of borrowing .
- This could further result in capital flows and the appreciation of Indian rupee. This would lead to a further decrease in the external ratio of GDP to debt, an increase in the the net investment positions of international investors in relation to GNP ratio a rise in the ratio of debt service to GDP. in reserves of foreign currency given those net foreign exchange assets.
- Reduction in Current account deficit OBICUS
- The RBI has been conducting the OBICUS on the manufacturing sector on an annual basis since the year 2008.
- It is the acronym for Order Books, Inventories and Capacity Utilization Survey (OBICUS).
- The report provides insight into the needs for the Indian manufacturing industry.
- The survey includes 2,500 businesses in both the public and private sector.
- The study reveals the changes in actual data from orders books and inventory levels for raw materials as well as finished goods as well as capacity utilization.
- The inventory is the amount of merchandise that a business has.
- Capacity utilization is the term used to describe the production and manufacturing capabilities being used by an organization or nation.
- The survey also lists the ratio of inventories total to sales, as well as the proportion of raw materials (RM) as well as finished good (FG) inventory to sales, in percent.
- It is thought to be a crucial indicator for assessing the pace of economic growth, inflation pressures, as well as the overall business cycle.
- The research provides valuable information for the formulation of monetary policy.
- The Reserve Bank of India has begun the 58th cycle of their Order Books, Inventories and Capacity Utilisation Survey (OBICUS).
- The survey covers the reference period April- the end of June in 2022 (Q1:2022-23).

Topic 25. INDIA'S UNIQUE JOBS CRISIS

Important for subject: Economy

Unemployment India is home to "too too many" in the field of agriculture. The inability of transferring excess labour out of farms is an important policy failure by successive governments.

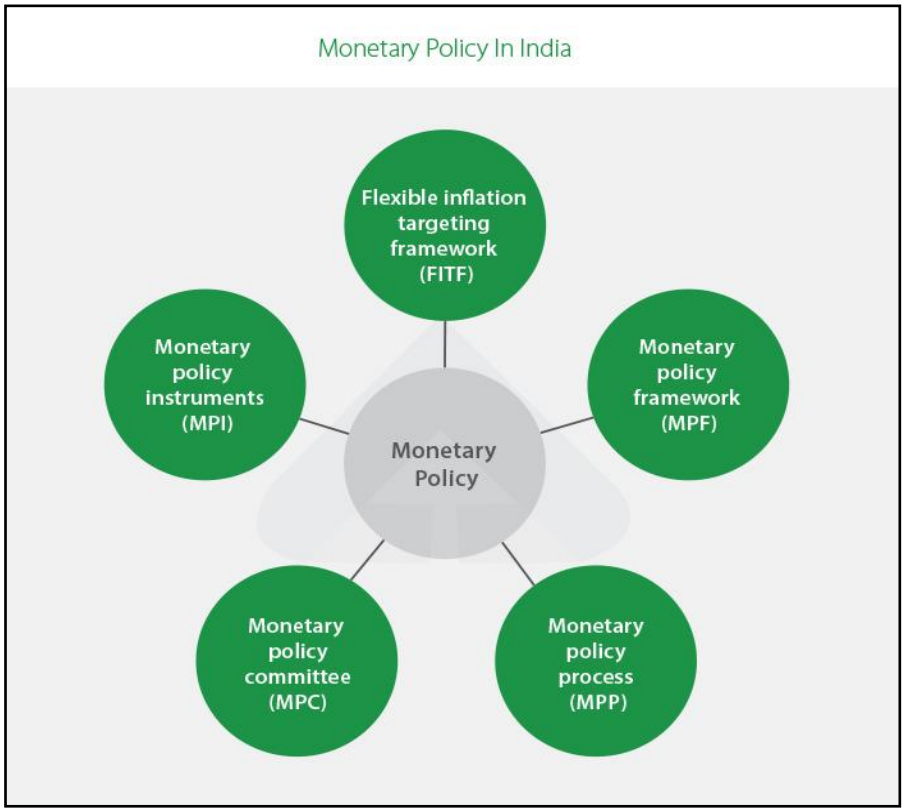
- Between 1993-94 and 2018-19, the agricultural part in India's workforce fell down from 61.9 percent to 41.4 percent, based on figures from the National Statistics Office's Periodic Labour Force (previously known as "employment and unemployment')
- The Kuznets Survey Curve Kuznets Curve is used to prove the idea that economic growth results in greater inequality, then later, the decrease of inequality.
- This idea first suggested by American economist Simon Kuznets.
- Kuznets Process It is the transfer of labor from farms to other activities with higher value including manufacturing and advanced services
- What exactly is Periodic Labour Force Survey?
- In light of the significance of having information on the labour force in more frequent intervals
- The National Statistical Office (NSO) introduced its Periodic Labour Force Survey (PLFS) in April 2017.
- The goal of PLFS is principally twofold: to estimate the most important indicators of unemployment and employment (viz. the Worker Population Ratio, Labour Force Participation Rate, Unemployment Rate) in a relatively short period of three months in urban areas in the CWS.
- To determine the unemployment and employment indicators in both the normal status and CWS, both in urban and rural areas.
- National Statistical Office (NSO) The National Sample Survey Office (NSSO) joined together with the Central Statistical Office (CSO) to create the National Statistical Office (NSO).
- NSO was initially envisioned by the Rangarajan Commission to implement and keep standards for statistical data and coordinate the statistical operations for Central as well as State agencies as laid out through the

National Statistical Commission (NSC).

- NSO is expected to be led by the Secretary (Statistics and Program Implementation).
- CSO is the central point of contact for national statistical activities and also creates statistical standards.
- NSSO is accountable for conducting large-scale surveys of samples across a variety of areas on an overall India basis.
- This is the statistics arm of the Ministry of Statistics and Programme Implementation (MoSPI).
- NSO is entrusted with the following responsibilities : Acts as the principal agency to plan the growth of the statistical system in the country.
- Lays down and enforces guidelines and norms in the area of statistical analysis, including definitions and concepts as well as the methodology for collecting data, processing data and dissemination of the results.
- Prepares national accounts , as and releases annual estimates of the national product as well as government and private consumption expenditures as well as savings, capital formation estimations of the capital stock, and the consumption of fixed capital.
- Maintains a relationship with international statistical organisations like that of United Nations Statistical Division (UNSD) as well as The Economic and Social Commission for Asia and the Pacific (ESCAP) as well as The Statistical Institute for Asia and the Pacific (SIAP), and so on.
- Releases and releases the Index of Industrial Production (IIP) each monthly in the form of "quick estimations". It also is responsible for conducting an annual survey. Annual Survey of Industries (ASI) Conducts periodic all-India Economic Censuses as well as follow-up surveys of enterprises.
- It has conducted the very first Time Use Survey (TUS) in India from January to December 2019.

Topic 26. RBI MONETARY POLICY HIGHLIGHTS

Important for subject: Economy



The central bank increased the repo rate up to a that of pre-pandemic levels, as well as The Monetary Policy Committee is focused on the withdrawal of the accommodation.

- The RBI Governor has stated that India has experienced financial stability macroeconomic stability, resilience and stability of growth in spite of the two Black Swan events i.e. the coronavirus pandemic as well as the Ukraine-Russia war.
- Black Swan event refers to an unpredictability event with negative effects.
- The repo rate, which is the principal lending rate, was raised to 50 basis points (bps).
- A change of 1% equals 100 basis points.
- The repo rate is currently at 5.4 percent.
- The RBI's aggressive stance will also help prevent the rupee and prevent it from further depreciating.
- The inflation projection for the current fiscal year is the same with 6.7 percent.
- It indicates that retail inflation rate would be above the threshold of 6 percent through the initial three quarters in 2022-23.

- RBI is expanding the reach that the Internal Ombudsman framework by mandating Credit Information Companies (CICs) to establish an own Internal Ombudsman (IO) framework.
- The Reserve Bank - Integrated Ombudsman Scheme 2021. It incorporates the three Ombudsman programs of RBI including The Banking Ombudsman Scheme in 2006 and Ombudsman Scheme for Non-Banking Financial Companies, 2018; Ombudsman Scheme for Finance Companies in 2018, and Ombudsman Scheme for Digital Transactions, 2019. Ombudsman Scheme to facilitate Digital Transactions, 2019.
- It also covers under its ambit Non-Scheduled Primary Cooperative Banks with deposits of at least Rs50 crore.
- The Scheme is based on the "One Nation One Ombudsman approach. It makes that the RBI Ombudsman mechanism a neutral jurisdiction.
- It was created in the Reserve Bank under Section 35A of the Banking Regulation Act, 1949 and Section 45L of the Reserve Bank of India Act 1934, and section 18 under the Payment and Settlement Systems Act 2007, 2007
- It will offer a free resolution of complaints from customers involving deficiencies in the services provided by the entities that are regulated by the RBI If the issue is not addressed at the level that pleases customers or not addressed within 30 days from the entity that is regulated.
- It is no longer mandatory for a complainant to determine under which scheme he/she is required to file an appeal to the Ombudsman.
- The Scheme has been eliminated from the authority of each ombudsman's office.
- The Centralised Receipt and Processing Centre was established within the RBI, Chandigarh for receipt and processing initial complaints via email and that are in any form.
- The Regulated Entity will not have the right to appeal in cases where an Award is issued by the ombudsman against it for not furnishing satisfactory and timely information/documents.
- Repo rate and monetary policy stances - already addressed

Topic 27. SYSTEM OF ELECTRONIC GENERATION OF A DOCUMENT IDENTIFICATION NUMBER (DIN)

Important for subject: Economy

Background Aims Supreme Court has directed the GST Council of the Union of India to provide an advisory to States concerning the implementation of the electronically (digital) creation of the Document Identification Number (DIN) for the indirect tax administration.

- Document Identification Number (DIN) is a Document Identification Number (DIN) is an unique 20-digit identification code included in every communication sent by the government office to tax payers.
- By utilizing this number it is possible for the taxpayer to determine the authenticity of the message that the taxpayer received electronically.
- issued by the Central Board of Indirect Taxes and Customs. It is for the entire range of GST associated communication (including electronic mail) to be distributed by government offices to taxpayers as well as other interested parties.
- Structure: Importance - It can assist in the creation of an electronic directory to maintain an accurate audit trail of legitimate government communications.
- Taxpayers can determine if the information received from officials is genuine or not.
- The documents that have to be issued a document identification number are documents that require a search authorisation letter, summons, arrest memos inspection notices, and letters made during an investigation.
- Exceptions: When there are technical difficulties in generating the electronic DIN or When communication for investigation/enquiry/GST DIN Verification, etc., is to be issued on a short notice or in urgency and the authorised officer is unavailable at his regular place of duty (office).
- Taxpayers are asked to note that documents issued by government offices that do not have the requirement of a DIN (other than the ones issued in the contexts listed under the exceptions) will be deemed unconstitutional.

Topic 28. NO QUESTION OF RECESSION OR STAGFLATION IN INDIA, SAYS FM SITHARAMAN

Important for subject: Economy

As per Finance Ministe, India isn't even close to an economic recession or stagflation, and the government is working to reduce retail inflation to below 7 percent.

- While most large economies have triple-digit debt to GDP ratios The central government's debt-to GDP ratio decreased to 56.29 percent from GDP for FY22, down from the updated estimate of 59.9 percent for the year before.
- In the report of the IMF the general government (centre+states) debt was 86.9 percent of its GDP for FY22.
- In comparing the state of the economy in 2013 during the taper tantrum in which India was viewed as one of the five fragile countries, FM said the NDA government has managed to keep inflation under control . Key terms: CPI: Inflation is measured by CPI.
- A broad measure to estimate price fluctuations within a set of products and services that represent consumer expenditure in the economy is known as the consumer price index.
- The National Statistical Office (NSO), Ministry of Statistics and Programme Implementation has released CPI (Rural Urban, Combined) with Basis 2012 = 100
- A measure of inflation that excludes temporary or transitory price fluctuations as in the case of certain goods like energy, food products, and food items is known as core inflation. WPI: Wholesale Price Index or WPI is a measure of the fluctuations in the price of products which are traded and sold in bulk wholesale by wholesale companies to other businesses.
- The figures are released through the Economic Advisor of the Ministry of Commerce and Industry.
- WPI CPI vs CPI While WPI tracks the wholesale cost of items while CPI tracks the retail price of goods. CPI is the measure of the price that households pay for a variety of different services and goods.
- While the WPI is an important measure of inflation in some countries However, the RBI does not use it for purposes of policy and also for setting repo rates.
- The central bank is currently using CPI also known as retail inflation as its primary

measure of inflation in determining the policy of credit and monetary monetary.

- Stagflation is a logically contradiction that is characterized by slow economic growth as well as high unemployment, or stagnation. It is the at the same time, accompanied by increasing prices (i.e. inflation).
- Stagflation may also be defined as an interval of high inflation, accompanied by an increase in Gross Domestic Product (GDP).
- Recession Recession is a slowdown or a huge reduction in economic activity.
- A dramatic drop in spending typically can lead to recession.
- This slowdown in economic activity could be present for a few months, thereby severely limiting the growth rate of an industry.
- In such a scenario the economic indicators like GDP or corporate profits, employment and more. are likely to decline.
- This causes a mess for the economy in general.
- To counter the threat To combat this threat, the economies usually respond by increasing their monetary policies and adding more money to the economy, i.e. in increasing the amount of money available.
- The ratio of debt to GDP is a measure of how likely a country will be able to pay its debt. Investors frequently take a look at the debt-to GDP metric to determine the ability of the government to finance its debt.
- Increased debt-to-GDP ratios have fueled global economic crisis.
- Fragile Five In August 2013 an analyst from Morgan Stanley coined the term "Fragile Five" to represent emerging market economies that are dependent on unstable foreign investments to fund their expansion plans.
- Five members from the Fragile Five are Turkey, Brazil, India, South Africa and Indonesia.

Topic 29. RESERVE BANK OF INDIA'S FINANCIAL INCLUSION INDEX

Important for subject: Economy

Its (RBI's) Composite Financial Inclusion Index (FIIndex) which measures the degree in financial integration across the nation increased by 56.4 by March 20, 2022.

- This is a rise from 53.9 in March 2021. which reflects growth across all sectors.
- Each year, the FI Index will be published in July each year according to the RBI announced in a press release.
- The index contains information about banks, investments and insurance, postal services and pension sector, in consultation with the government and their respective sectoral regulators.
- The index encapsulates information on the various factors of financial inclusion into one value that ranges between 100 and 0 where zero represents complete financial exclusion while 100 is a sign of complete financial inclusion.
- The FI Index comprises three broad parameters (weights that are indicated with brackets) Access (35 percent) as well as Utilization (45 percent) along with the Quality (20 percent) cent)with each composed of different dimensions that are

calculated using several indicators.

- It was built without any "base year".
- The most distinctive feature in the Index is its Quality Parameter, which measures the quality aspect of financial inclusion, as illustrated by consumer protection, financial literacy as well as inequalities and shortcomings in services
- The FI-Index responds to the accessibility to, accessibility and use of services, and the quality of services. It includes every one of the 97 measures.
- The most distinctive feature of FIIndex is its quality parameter that measures the quality aspects of financial inclusion, which is reflected by the level of financial literacy, consumer protection and inequalities as well as the lack of services.
- The RBI had conceptualized the FI-Index as a broad index that includes information about banks, investments and insurance, postal services and pension sector after concert with the government as well as the the respective sectoral regulators.
- The FI-Index is released annually in June of each year.

Topic 30. SUPREME COURT MOOTS VERDICT TO HELP UNMARRIED WOMEN GAIN 'BODILY AUTONOMY' UNDER MTP ACT

Important for subject: Polity

The Supreme Court on Friday said it might loosen the control of an old 51-year-old law that prohibits unmarried women from terminating their pregnancies at least 24 weeks old.

- The court said the ban was "manifestly ineffective and in violation of women's rights to bodily dignity and autonomy".
- The Medical Termination of Pregnancy Act of 1971 and its Rules of 2003 prohibit unmarried women who are 20 and 24 weeks pregnant to terminate their pregnancy with the assistance of licensed medical professionals.
- Important Features in the MTP Amendment Act, 2021:
- One category: In 2021 Parliament modified in 1971 the MTP law to permit an abortion on the advice of a doctor in pregnancies of up to 20 weeks.
- 2. Category - For births that last between 20-24 weeks new law requires the approval of two physicians.
- 3 category 3. Opinion of the Medical board at the state level is necessary in order for a pregnancy to be stopped within 24 weeks in the case of significant foetal

abnormalities.

- In the second category for the second category, the Rules defined seven types of women that would be able to seek termination.
- Section 3B of the Rules that are enacted in the MTP Act reads: "The women in the following categories shall be considered to be eligible for termination of pregnancy in accordance with the clause (b) in subsection (2)
- The section 3 in the Act is applicable to a time period of between 24 and 28 weeks, which includes victims of sexual assault, minors who have been raped or sexually assaulted or change in marital status in the course of pregnant (widowhood as well as divorce) or women suffering from physical disabilities, major disabilities, according to the criteria set out in the Rights of Persons with Disabilities Act in 2016. Mentally sick women, which includes mental retardation
- The foetal malformation has a significant risk of being incompatible with life or , if the child is born , it could be affected by such mental or physical abnormalities that cause it to be severely handicapped and pregnant women in humanitarian settings or in disaster or emergency situations, as they may declare by government.

Topic 31. NO PRIVILEGE TO MPS FROM CRIMINAL PROCEEDINGS DURING SESSION: NAIDU

Important for subject: Polity

Rajya Sabha Chairman M. Venkaiah Naidu stated on Friday that members have the wrong idea that they are granted an exemption from the actions of investigating agencies, even though the session is still in progress.

- He claimed he's looked over all precedents and according to Article in 105, of the Constitution Members of Parliament have certain privileges that allow them to are able to carry out their duties as members of parliament without any difficulty.
- One of the advantages is that a member of Parliament is not liable to arrest in civil cases for 40 days prior to the beginning of the meeting or Committee meeting, and for 40 days after.
- This privilege is already in place into Section 135A in the Civil Procedure Code, 1908.
- In criminal matters the Members of Parliament do not stand in a position to be treated differently from the average citizen.

- This means that a member of Parliament is not entitled to any immunity against being arrested in a criminal proceeding in the course of the session or in any other way.
- There have been many of rulings issued by Presiding Officers.
- A good example is a ruling made in the year the year 1966 was made in 1966 by the Dr. Zakir Hussain. It was stated that "Members of Parliament enjoy certain privileges in order they are able to perform their tasks.
- One of these privileges is liberty from arrest during the time that parliament is sitting. The right to be free from arrest is restricted to civil proceedings and is not allowed to influence the administration of criminal cases."
- Anandan Nambiar case, the Supreme Court held that the real constitutional position is that, as in the case of the legal order of detention concerns, the Member of Parliament is able to be granted any special status other than that of an average citizen and is just as susceptible to being arrested and detained in the course of the Session.
- The Supreme Court in a recent case, State of Kerala Vs. K. Ajith and Others, held the fact that "privileges and immunities do not serve as ways to be able to get exempts from the laws that governs the country, especially as in this instance the criminal law that regulates the conduct of all citizens."
- Article 105 : Powersand privileges and other privileges. in the houses of parliament, and of the committees and members of them.
- Importantly, in accordance with the Constitutional provisions as well as to regulations and rules governing the procedures of Parliament, there will be the right to speak freely in the Parliament.
- A member of Parliament is not be held accountable to any action at any tribunal regarding anything he has said or voted on by his Parliament or on any committee of it or any committee thereof, and no one is responsible for the publication, by or with the authority of any House of Parliament of any document, paper, vote or other proceedings.
- Other than that other respects, the power, privileges, and privileges that the respective House of Parliament as well as of its members as well as the committees in each House shall be as which may from time moment be determined by Parliament through law. The powers, privileges and immunities of each House until they are defined they shall be the same for the House as well as its committees and members prior to the

entry to force of section 15.15 of the Constitution (Forty-fourth Amendment) Act 1978.

- Clauses (1), (2) and (3) are applicable for persons who, as a result of this Constitution are entitled to participate in, or other than that, to participate in the proceedings of the House of Parliament or any committee thereof, in the same way as they are applicable to Parliamentarians.

Topic 32. THE FAMILY COURTS (AMENDMENT) BILL 2022 AND WHY IT RELATES TO ONLY TWO STATES

Important for subject: Polity

The Constitutional Family Courts (Amendment) Bill 2022, was passed to allow states to establish family courts to facilitate reconciliation and ensure that any the family law disputes and marriage are swiftly resolved.

- Centres must inform when the Act to enter into force in a state where such courts have been established. the Family Courts Act, 1984 and its regulations
- The Family Courts Act was enacted in 1984 to allow the creation of family courts in States to settle disagreements relating to family and marriage.
- According to the Act it is stipulated that the setting up for family courts as well as the functioning of them is the responsibility of the state governments in conjunction with their respective high courts.
- The Act also provides for the procedure for the appointment of judges to family courts.
- 7 Schedule: Concurrent List No 5. Divorce and marriage; minors and infants as well as adoption; wills; succession and intestacy joint family and partition as well as all issues in respect of which the parties in judicial proceedings had been immediately prior to the date of the adoption of this Constitution important for the purposes of their individual law.

Topic 33. OFFICE OF COAL CONTROLLER (EARLIER COAL COMMISSIONER)

Important for subject: Polity

It was founded in 1916, and is considered to be one of the oldest offices of the Indian Coal sector.

- The main reason behind the creation of this office was to ensure the government's

control to meet the demand for coal during the First World War.

- A severe shortage of coal forced the publication of Colliery Control Order, 1944 to ensure effective control over the production, distribution, and pricing of coal.
- In 1996, the pricing and distribution of coal were regulated. therefore Colliery Control Rules, 2004 governs it Colliery Control Rules, 2004 which governs its functions. acts as an appellate authority in the event of disputes between consumers and the owner that arises out of the declaration of the size and grade of coal.
- Quality control with regard to the maintenance of coal's quality. To allow the permission to open or re-open a coal seams, coal mines, or a seam, or to divide the mine.
- Coal Controller has been made the official authority on statistics with respect to the coal and lignite statistical data.
- The responsibility was assigned to carry the Annual Coal & Lignite survey and the publication of Provisional Coal Statistics and Coal Directory of India.
- Assessment and payment of the excise duty imposed on all coal used for production and sent out.
- Under the Coal Mines (Conservation & Development) Act 1974 as well as Coal Mines (Conservation and Development) Amendment Rules, 2011 providing financial assistance to coal mine operators to ensure the preservation of the coal resource(the staking of UG mines)
- Research, Infrastructure development, and Protective works such as blanketing with incombustible materials and CO2 flushing, filling sections that are subsided, cutting trenches and other.

Topic 34. MINISTRY OF DEVELOPMENT OF NORTH EASTERN REGION

Important for subject: Polity

Minister of Development of the North Eastern Region is an official Government of India ministry, founded in September 2001.

- It serves as the central Department within the Central Government to deal with issues related to the socioeconomic growth of eight states of Northeast India: Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim.
- It serves to act as an intermediary between Central Ministries/ Departments and the

State Governments of the North Eastern Region for the purpose of economic development , including the removal of infrastructure bottlenecks, the provision of essential services, and creating an environment that encourages private investment, and to eliminate obstacles to a lasting tranquility and safety within the North Eastern Region.

- The functions in the DoNER. Non Lapsible Central Pool of Resources (NLCPR) Collaboration in conjunction with Central Ministries and the State Governors in states in the NE states.
- Capacity Building Advocacy and Publicity International Cooperation Enterprises of the Department
- The ministry operates the following institutions operating under its aegis: North Eastern Development Finance Corporation Ltd.
- (NEDFi) North Eastern Regional Agricultural Marketing Corporation Limited (NERAMAC)
- It is the Sikkim Mining Corporation Limited (SMC) North Eastern Handlooms and Handicrafts Development Corporation (NEHHDC)

Topic 35. TAIWAN DOMINATES THE WORLD'S SUPPLY OF COMPUTER CHIPS - NO WONDER THE US IS WORRIED

Important for subject: International Relations

- One aspect of Nancy Pelosi's visit to Taiwan that's been ignored was her encounter in Taiwan with Mark Lui, chairman of the Taiwan Semiconductor Manufacturing Corporation (TSMC).
- Pelosi's trip was in line with US efforts to persuade TSMC -the world's biggest chip maker, that it is US has a significant dependenceto create an manufacturing facility within the US and stop producing high-tech chip for Chinese companies.
- **What is the reason Taiwan is important for the US?**
- Taiwan's autonomy has been an important issue in the geopolitics of the US due to the island's supremacy in the semiconductor manufacturing industry.
- Super-fast, transformational 5G internet created is creating a new universe that is connected to devices all type (the "Internet of things") as well as a brand new generation of weapons that are networked.
- US semiconductor design firms like Intel were heavily dependent on Asian supply

chains to make of their products.

- Particularly, Taiwan's place in the field of semiconductor manufacturing is similar to Saudi Arabia's standing in OPEC.
- TSMC holds five-year market position of 53% in the global market for foundries (factories contracting to produce chips that are designed in different countries).
- Other Taiwan-based companies claim an additional 10% market share.
- The United States is heavily dependent on a single firm --- TSMC in order to manufacture the most cutting-edge chips.
- It is the fact that just TSMC or Samsung (South Korean) can produce the most modern semiconductors (known as five nanometers) put at risk the capability to meet the future and current [USnational security and crucial infrastructure requirements.
- In 2020 in 2020, the Trump administration imposed a string of harsh sanctions on Chinese technology giant Huawei which were intended to isolate the company from TSMC and TSMC, which was dependent for the production of premium semiconductors required to run its 5G infrastructure.
- It's all part of a wider "tech conflict" in between US and China and China, where the US is seeking to restrict China's technological advancement and stop it from taking on the role of a global tech leader.

Topic 36. INDIA OBSERVES CHABAHAR DAY WITH EMPHASIS ON LINKAGE WITH CENTRAL ASIA

Important for subject: International Relation

The Ministry of Port, Shipping and Waterways (MoPSW) on Sunday observed the 'Chabahar Day' in Mumbai to celebrate the Chabahar Link to the The International North-South Transport Corridor (INSTC)-Connecting Central Asian Markets.

- Chabahar Chabahar is strategically located in the Makran Coast in Gulf of Oman at the southern end of the Persian Gulf and Iran's closest and easiest gateway to Indian Ocean.
- It's a long way from Iran's main port, Bandar Abbas that currently handles the majority of its transhipments but is limited because of capacity and inability to accommodate large vessels.
- Contrarily, Chabahar is an oceanic port, and is capable of handling larger vessels.
- Utilizing it to its full potential is of Iranian interests as it will cut down on the distance.
- If it is connected to it's Iranian rail network, this port can link the port to all of Iran.
- The Chabahar-Zahedan railway line and the development of it has offered the chance for Iran to begin development activities in this region as it has been granted exemptions from the latest round of sanctions by the US.
- sanctions were imposed through Indian tension and pressure to pressure from the USA due to it being the preferred transit point for the import of goods to Afghanistan to provide humanitarian aid and relief to the Afghan people. Afghanistan.
- The impetus to the development of the port came in May 2016 when India, Iran and Afghanistan signed a key trilateral deal, known as the Chabahar Agreement, to establish a strategic India-Iran-Afghanistan Trilateral Agreement on Transport and Transit Corridors to facilitate trade with Afghanistan, Central Asia, Russia and Europe for utilizing Chabahar port as a hub, giving a boost to Indian access to Afghanistan and creating the International North-South Transport Corridor (INSTC).
- It is INSTC is a crucial trade corridor initiative, in which India is working with 12 other countries to create the economic corridor.
- 7,200-km multi-mode transportation (Rail road, sea Road) project to transport cargo between India, Iran, Afghanistan, Armenia, Azerbaijan, Russia, Central Asia and Europe.
- The aim is to enhance connectivity in trade between major cities, such as Mumbai, Moscow, Tehran, Baku, Bandar Abbas, Astrakhan, Bandar Anzali and many more.

- Dry runs on two routes were run in 2014. The first one was Mumbai through Baku by Bandar Abbas and the second was Mumbai to Astrakhan via Bandar Abbas, Tehran and Bandar Anzali.

Topic 37. KALAPANI, LIMPIYADHURA AND LIPULEKH

Important for subject: International Relations

The former Nepalese pm KP Sharma Oli stated that his removal from office in the year 2000 after his government issued a updated map of Nepal which comprised Kalapani, Limpiyadhura and Lipulekha is territories.

- It is located in the Lipulekh pass is located at a westerly point in Kalapani the border zone in between Nepal in the region of India.
- Both India as well as Nepal Both countries claim Kalapani as an integral part of their territories. Lipulekh is an Himalayan pass.
- The pass is located near the Chinese trading city located in Taklakot (Purang) located in Tibet and was used from ancient times by mendicants, traders and pilgrims who travel across India as well as Tibet.
- This road connects the Byans valley in Uttarakhand, India with the Tibet Autonomous Region of China and is the final territorial line in Indian territory.
- It is the Kailash Mansarovar Yatra, a Hinduism pilgrimage to Mount Kailash and Lake Manasarovar is a route that traverses the pass.
- At present, Lipulekh Pass is open to trade cross-border between June and September.
- It's also known as Lipu-Lekh pass/Qiangla or Tri-Corner is a mountain pass at high

altitude located within the Himalayas of western Asia at a an elevation of 5,334 meters or 17,500 feet.

- The pass serves as an International mountain pass that connects India, China and Nepal.
- Nepalese claims Nepalese rights to south of the pass also known as Kalapani territory are based on the 1816 Sagauli Treaty between British East India Company and Nepal.
- The treaty established the boundaries along the Kali River (also called the Sharda River and Mahakali River).
- India states that the river's origin is the Kalapani village, as that is the place where all its tributaries meet.
- However, Nepal claims it is beginning with an elevation of Lipulekh Pass.
- The history of the area reveals that around 1865 in the year 1865, the British moved the border close to Kalapani towards the river's watershed Kalapani river, instead from the actual river, taking over the land now known as Kalapani territory. Kalapani territory.
- This is in accordance with the British belief which states that the Kali River begins only from the Kalapani springs, which means that the Sugauli agreement was not applicable to the region that was above the springs.
- Kali River It is also called Sharda River or Kali Ganga in Uttarakhand.
- It connects to Ghagra River in Uttar Pradesh, which is an tributary of Ganga.
- Projets for the River: Tanakpur hydro-electric project, Chameliya hydro-electric project Sharda Barrage.

Topic 38. IMF SURVEILLANCE

Important for subject: International Relations

IMF assistance in Sri Lanka and Bangladesh Surveillance is one of the three primary actions that are part of the International Monetary Fund (IMF) along with technical and lending assistance.

- Through its surveillance Through surveillance, the IMF monitors the international financial system and its policies for all its member countries in order to improve global stability in the economy and finance.
- It is done at the national, regional as well as at the global level.

- At the national level At the country level, the IMF provides bilateral supervision through the "Article IV Consultation" which is named after Article IV of the IMF's Articles of Agreement.
- The consultations are a regular IMF staff trip to every member country in which they talk about with government officials as well as other parties, the country's overall economic health as well as its policies on fiscal and monetary policy, and any economic risks that they perceive.
- The IMF creates the staff report, which includes an evaluation and suggestions, the opinions from members of the IMF Executive Board as well as an overview press release, and sometimes an executive Director who represents the country.
- Together, they form together the Article IV report. The policy advice contained provided in Article IV reports is not legally binding, however it is required for all of the 189 IMF members to undergo bilateral surveillance.
- Article IV Scanner the Article IV Scanner was created to allow researchers, civil society organizations as well as officials to find important words and phrases within more than 2 000 IMF Article IV reports since 2000, all in one location.
- This allows IMF's bilateral oversight that is more open, transparent and accessible to civil society participation.

Topic 39. CHINA TAIWAN ISSUE: ONE CHINA POLICY

Important for subject: International Relations

House Speaker Nancy Pelosi arrived in Taiwan and brushed aside advice from the Biden

administration over the possibility that her high-profile visit could spark a new conflict in Asia and prompting a swift action from Chinese government.

What is the China policy?

- The One China policy is a important pillar of Sino-US relations.
- It's a diplomatic acknowledgment of China's belief in that only there's one Chinese government.
- In accordance with the policy that was adopted, the US recognizes and has formal relations with China as opposed to an island called Taiwan that China considers a separate province.
- China insists that Taiwan as an integral part of China.
- Thus, any nation which wants friendship with mainland China must end official relationships with Taipei.
- Since the US established diplomatic ties in 1979 with Beijing around 1979. the US was required to break the ties with Taiwan and close its Taipei Embassy.
- The result is Taiwan's diplomatic isolation from international community.
- China and Taiwan dispute (Background): China and Taiwan were divided during the conflict in 1949. China believes Taiwan as part of its territory and can be controlled with force if needed.
- However, Taiwan's leadership says the Taiwan can be considered a sovereign country.
- After decades of wary intentions and a savage rhetoric, relationships among China and Taiwan began to improve in the early 1980s.
- China proposed a formula called "one country two systems" that states that Taiwan could be granted substantial autonomy if it accepts Chinese unification.
- In Taiwan the proposal was turned down, but the Chinese government did relax the restrictions on visits to and investments in China.
- There were also limited talks between the two sides' unofficial representatives, though Beijing's insistence that Taiwan's Republic of China (ROC) government is illegitimate prevented government-to-government contact.
- The Chinese government's decision to implement an act of national security within Hong Kong in 2020 was widely viewed as another indicator the fact that Beijing was becoming increasingly aggressive in the region.

- China's concerns one China Policy Rejected: This means that countries who seek diplomatic relations with People's Republic of China (PRC, Mainland China) must end official relations with the Republic of China (ROC, Taiwan) and reverse.
- Taiwan, the ROC, Taiwan has diplomatic relations with 15 nations and substantial ties with many more including Australia, Canada, EU nations, Japan and New Zealand.
- Additionally, Taiwan has full membership of 38 intergovernmental organizations as well as their affiliated bodies, such as those of the World Trade Organization, Asia-Pacific Economic Cooperation, Asian Development Bank and Central American Bank for Economic Integration.
- Exercises and Agreements to Counter China The formation of AUKUS (Australia, UK, USA) to fight China.
- Malabar Exercise (US, Japan, India and Australia) is a significant step in the direction of an Indo-Pacific that is sustainable.
- Strategic and Defense Support to Taiwan from the US: Taiwan has sought to strengthen its defenses through purchasing US weapons, such as upgraded F-16 fighter drones, jets with armed weapons, rocket systems, as well as Harpoon missiles.
- India's position on the issue In 1949 India is a signatory to its "One China" policy that recognizes Taiwan as well as Tibet as being part of China.
- Although India has not mentioned its commitment to the One China policy in joint statements and official documents as of 2010its interaction with Taiwan remains limited because of the structure of relations with China. India Taiwan and India Taiwan don't have official diplomatic relations, however in the past, both countries have established representatives in their respective capital cities that serve as embassies in fact.

Topic 40. AS CHINESE ROCKET DEBRIS PLUNGES INTO OCEAN, THE RISKS OF SPACE JUNK AND ITS UNCONTROLLED DESCENT

Important for subject: Science and Technology

Space ended after a week of global fear and anxiety debris from an enormous Chinese rocket - the Long March 5B - fell to earth over the Pacific as well as the Indian oceans.

What is an uncontrolled reentry?

- The initial stage or core in a rocket composed of large pieces that typically don't make

it to orbit following launch, but instead return safely on the exact projected course.

- If they do get into an orbit, an expensive de-orbit maneuver is necessary for a steered and controlled return with engine burn.
- In the absence of a de-orbiting maneuver that stops the orbital core stage causes an uncontrollable fall. Massive remnants of China's Long March 5B's rockets' central stage are known for these explosive, uncontrollable descents back to the earth.
- The reason lies in a variation in the mission sequence, where the central stage is able to orbit and then crashes back.
- The majority of rockets in the world segregate the launcher from the payload prior to leaving the air.
- A second engine is then used to give the payload an additional boost.
- However, China's 5B series does not have another engine and is pushed straight into space.
- What is the reason it is so difficult to monitor the uncontrolled descents? The various variables that are that are involved make it hard to accurately track the timing of re-entry and the drop area of rocket debris during uncontrolled descents.
- The reasons that make this prediction difficult include atmospheric drag, changes of solar energy, angles and rotational changes of the object, among others.
- An error of just one minute of re-entry times could lead to the final resting point of the debris shifting by hundreds of kilometers.
- Do you have laws governing space junk?
- The Space Liability Convention of 1972 stipulates the responsibility of the space object is responsible for harm.
- The treaty states that "a launch State is totally liable to compensate for any damage caused by its spacecrafts on the earth's surface or to aircrafts, as well as accountable for damages caused by its space-related faults.
- The Convention also includes methods for the settlement of demands for compensation."
- But, there isn't a law that prohibits space junk from crashing into earth.
- In April it was reported that the remains of an Chinese rocket was discovered within two Maharashtra villages.
- What's Space Junk? Space junk, also known as debris, consists of defunct rocket

stages dead satellites, pieces of space objects, and other debris from the Anti-satellite (ASAT) system (ASAT).

- At a speed of 27,000 kmph within Low Eart Orbit (LEO) These objects pose an extremely real risk since collisions with even centimetre-sized fragments could be fatal to satellites.
- The space debris floating free can pose a threat to operating satellites. A collision with them could render the satellites in disarray.
- It is also known as Kessler Syndrome and is named for National Aeronautics and Space Administration (NASA) scientist Donald Kessler in 1978.
- It states that if there's excessive space junk in orbit it could trigger an unintended chain reaction in which increasing numbers of objects be impacted and generate new space junk up to the point that the Earth's orbit ceases to be usable. it's a Domino Effect.
- How do I know about the NETRA Project? "Project NETRA" can be described as an alarm system for space to find debris and other threats to Indian satellites.
- Once it is operational it will provide India its own capabilities in Space Situational Awareness (SSA) similar to other space powers. It is managed by ISRO

Topic 41. ALPHA FOLD: A TOUR DE FORCE IN SCIENCE

Important for subject: Science and Technology

The awareness in IT DeepMind, a company that is owned by Google this week, the company announced that it was able to predict three-dimensional structures of over 200 million proteins with AlphaFold.

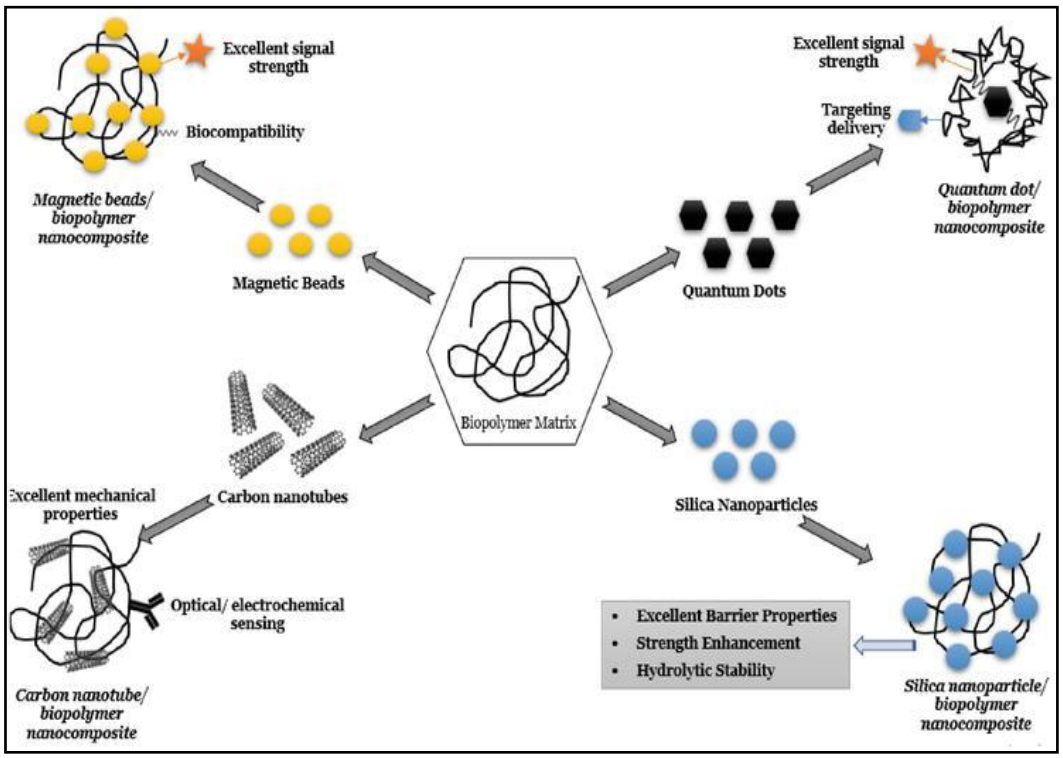
How does AlphaFold work?

- AlphaFold is an AI-powered protein structure prediction tool.
- It is built on the concept of a computer system known as deep neural networks.
- Based on the brain of the human neural networks utilize an enormous amount of input information and provide the desired output precisely the human brain.
- The actual work is carried out by the black box that is located between the input and layers of output, referred to as the hidden networks.
- AlphaFold is fed by proteins as input. When protein sequences pass through one end, the expected three-dimensional structures are released through the other.

- It's like making a rabbit appear out of an pot. What is AlphaFold operate? AlphaFold is an AI-powered protein structure prediction tool.
- It relied on processes that are built on "training learning, the process of learning, retraining, and relearning" to predict the structure of the of the 214 million distinct protein sequences stored within the Universal Protein Resource (UniProt) database.
- What is the significance of this new development? Proteins are the primary business goal of biology. This means that proteins perform all the tasks within a living cell.
- Thus, understanding the structure and function is crucial in understanding human diseases.
- Scientists can predict the structure of proteins by using x-ray crystallography, Nuclear magnetic resonance spectroscopy and cryogenic electron microscopy.
- These methods aren't only laborious, they usually require years of effort and are mostly based on trial and error techniques.
- The invention of AlphaFold alters all that.
- It is a major development in science and in structural biology, specifically.
- What does this have to do with India?
- The Indian group of structural biology must benefit from AlphaFold. AlphaFold database and learn to utilize the structure to create better drugs and vaccines.
- Are AlphaFold an exceptional tool for predicting protein structure? Though it's a feat in the field of structural biology, as every other method, it isn't flawless, nor is it the only AI-powered tool for predicting protein structure.
- RoseTTaFold created by David Baker at the University of Washington in Seattle, U.S., is a different tool.
- While less precise than AlphaFold but it is able to determine the protein complex's structure.

Topic 42. NEWLY DEVELOPED BIOPOLYMER NANO COMPOSITE

Important for subject: Science and Technology



Biopolymer that is biodegradable. Nano composite was developed by scientists at the Institute of Advanced Study in Science and Technology (IASST)

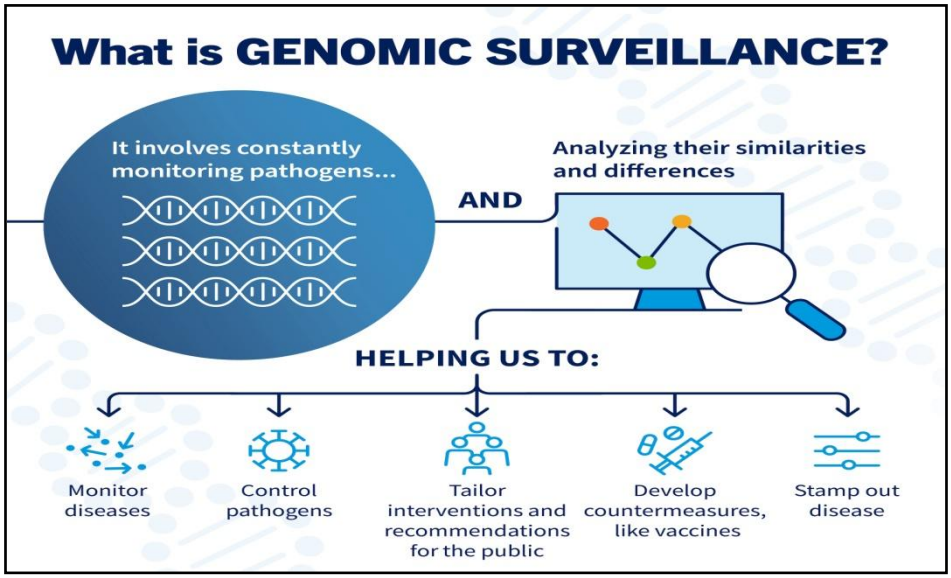
- Biopolymers are polymers made by or are derived from living organisms like microbes and plants instead of petroleum, the primary source of polymers.
- Biopolymers originate from biomaterials that are the renewable sources.
- A biodegradable biopolymer nanocomposite has been developed by scientists of IASST. Institute of Advanced Study in Science and Technology (IASST) they have developed a biodegradable nanocomposite that can detect the relative humidity.
- In this case, two different biopolymers were used, Guar Gum (a variety of beans that is derived from plants) in addition to Alginate (obtained by brown algae) was blended together with carbon dots (nanomaterial) to form an ultra-thin film. It was successfully used to determine the relative humidity.
- The nanocomposite film that was fabricated is a fantastic sensor that was smart based on"on-off" mechanisms of fluorescence against humidity.
- The nanocomposite film exhibits a changes in fluorescence when exposed to of high levels of light. Therefore the nanocomposite film could be used to measure the

freshness of the food packed using only an ultraviolet light source.

- A smart and efficient packaging can allow consumers to choose an item that is fresh without breaking the package.
- These innovative packaging designs boost sales and also reduces the time in identifying the freshness of food items.
- It detects relative humidity could be used as smart packaging materials, specifically for food processing as perishable foods can be susceptible to damage by changes the relative humidity.
- It is a non-toxic and biodegradable material that can be used for packaging materials to substitute petroleum-based plastics such as plastics.

Topic 43. WHY STRENGTHENING GENOMIC SURVEILLANCE IS AN IMPERATIVE

Important for subject: Science and Technology



A recent study showed an increase in the number of genetic modifications of the Monkeypox virus were much higher than anticipated.

- Since the first time it was reported to humans in the year 1970, monkeypox virus-related infections were largely limited to countries in Central as well as Eastern Africa until recently.
- In the wake of a rapid increase in cases after a rapid increase in cases, it was the World Health Organization (WHO) on the 23rd of July, 2022, declared the 2022 monkeypox epidemic as an Public Health Emergency of International Concern

(PHEIC).

- Genome sequences the rapid deployment of genomics as an instrument to identify outbreaks in the past decade has left a lasting impression in the ongoing COVID-19 pandemic and has resulted in a larger implementation of sequencing infrastructures across the globe.
- The surveillance of pathogens' genomes can give unique insight into the nature of the outbreak, as well as track how pathogens spread, and give a lot of possibilities to public health policy-making and for epidemiology.
- Researchers from around the globe have made more than 650 complete genome sequences of monkeypox strains up to date in databases that are public domain, including GISAID as well as GenBank.
- This includes more than 600 genomes sequenced this year only from more than 35 different countries, which includes genomes from two strains of India that were collected from Kerala.
- Rapid evolution of the monkeypox virus is a genome of approximately 2,00,000 base pairs, approximately six times the size of SARS-CoV-2.
- As a DNA-based virus the monkeypox virus, like other poxviruses was thought to have a low percentage of genetic modifications when compared with viruses with
- RNA genome , similar to SARS-CoV-2 that have an increased rate of mutations. For poxviruses, this number is believed to be less than one or two genetic mutations each year. However, a recent study found that the observed rates of genetic changes within the virus was much higher than anticipated -- an approximately 50 genetic mutations.
- APOBEC3 protein. The study suggests that a variety of mutations identified in the newly discovered versions of monkeypox viruses could be the result of interactions between the genome of the virus and a significant family of proteins encoded in the genome of humans, known as Apolipoprotein B Editing Complex (or APOBEC3).
- They protect against certain viral infections through editing DNA sequences of viruses as it reproduces within the cell.
- Monkeypox virus may be transmitted to a variety of hosts which include non-human primates, as well as rodents that could serve as natural reservoirs.
- Infections within the reservoir may allow for continued transmission and the accumulation of mutations, before the virus spreads to lead to human infections.

- Some studies also indicated that the virus is evolving in a continuous manner virus, which includes deletions in genes that are found in a handful of genomes of the current outbreak, which may suggest different ways that the virus evolves through sustained human-to human transmission.
- Monkeypox lineages. Genomes with shared and common mutations, and common origins are known as a lineage or a clade.
- In the beginning of 2000 in the early 2000s, two distinct types of monkeypox viruses were identified in Africa in which several patients with the illness were observed - that of the Central African (Congo Basin) Clade, along with the West African clade, of which the Congo Basin clade has been identified to be more transmittable and can cause more severe diseases.

Topic 44. WORKING TOWARDS ANIMAL HEALTH

Important for subject: Government Scheme

Physiography On the 29th of June, the Earth completed one full rotation -- or a day - -that was 1.59 milliseconds lower than the time it takes to complete its normal 24 hour cycle.

- Also, the Earth is moving fast. What's new? Even though the Earth is completing its rotations at a faster pace in recent times in comparison to an extended period of time, the planet actually is spinning slower.
- Every century is when the Earth will take just a few milliseconds more time to complete one full rotationin the average, the days are becoming longer.
- Thus, 1.4 billion years ago a single day would have lasted just 19 or less hours. The Guardian reported in 2018 quoting an academic paper that was published the same year.
- The study attributed the greater tendency of Earth's slow rotation mostly due to the gravitational pull exerted by the Moon which creates friction in the tidal zone and slows the Earth's spin.
- Why are the days becoming shorter? The hypothesis is that climate change-related surface changes, which affect the way the Earth spins and spins, could be the reason.
- These changes in the surface include melting glaciers that are found in Greenland and Antarctica and changes in the ocean circulation.
- Experts believe that the reason is internal and is rooted in the core's movement.

- among the numerous factors that influence speeds of Earth are the movements of the core of the planet's inner molten core as well as the activity of seismic waves, winds speed and atmospheric gases shifting.
- The actions that push mass towards the center of the Earth will accelerate the Earth's rotation. On the other hand, anything that pushes mass away will slow the spin.
- There are some experts who claim that the shorter length of the day may be due to the "Chandler wobble," an event that is the tiny deviation in geocentric poles of Earth.
- The usual intensity of the Chandler wobble is three or four metres on the surface of the Earth, however from 2017 until 2020, it vanished
- The turning Earth is influenced by a variety of elements, such as variations in the way that winds blow, or currents within the ocean.
- Certain of these elements can boost the speed of the planet as well as bring it down.
- What could happen if Earth continues to accelerate on a regular basis?
- To make sure that the time displayed on clocks corresponds to the speed of Earth's rotation, the system of leap seconds has been in use from the 1970s.
- They require one-second adjustment for Coordinated Universal Time (UTC) which is the standard for time employed to synchronize clocks throughout the globe.
- In response to the slowing of the earth's rotation due to the slowing of the planet's spin, 27 leap seconds have been added to UTC.
- But, if it is the case that Earth continues to rotate faster and the days are subsequently shorter, scientists could need to develop the first ever negative leap second' that is a subtraction of seconds from the clock

Topic 45. OPERATION AAHT

Important for subject: Government Scheme

A month long special campaign against Human Trafficking through the rails was announced in July 2022.

- The Railway Protection Force, as an intervention mechanism to complement those efforts by Anti Human Trafficking Units (AHTUs) of the police, recently launched an operation to stop Human Trafficking called "Operation AAHT".
- As part of Operation AAHT, the infrastructure and the intelligence network of the force can be used to gather, collate and analyze clues about victims, sources, routes

and destination, the most popular trains used by suspects, identity of the kingpins/carriers/agents/carriers etc. and then provided to other law enforcement agencies.

- In this scenario situation, the RPF could be able to function as a bridge across Statesto help local police with their task to stop the crime.
- RPF has established more than 750 AHTUs across the nation which will work in conjunction in conjunction with Police RPF is negotiating an MoU NGOe.
- Association of Voluntary Action (AVA) is also is known as Bachpan Bachao Andolan which will assist RPF by providing training. It will also provide information on Human Trafficking to RPF.
- The campaign provided a platform for all stake holders to join together in a joint effort in the fight against Human Trafficking through rail.
- A month long special campaign against Human Trafficking via rail was announced in July 2022.

Topic 46. QUALITY CONTROL OF AYUSH DRUGS

Important for subject: Government Schemes

Health-related steps taken: Drugs and Cosmetics Act 1940: It implements the legal provisions and provides regulations for the issuance of a drug license for Ayurveda, Siddha, Unani and Homoeopathic medicines.

- The authority to issue licenses is the responsibility of the State Drug Controllersor State Licensing Authorities who are appointed by the responsible StateGovernment or Union Territory Government.
- Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H): It is a subsidiary office within the Ministry of Ayush lays down Standards for Pharmacopoeia as well as Formulary guidelines regarding Ayurveda, Siddha, Unani and Homoeopathy (ASU&H) substances that fall within the scope of the Drugs and Cosmetics Act 1940, that serve as an official documents for assuring the quality of the medicines contained in it.
- It also has an appellate drugs testing lab which accepts samples from government agencies.
- AYUSH OushadhiGunvatta UttpadanSamvardhan Yojana (AOGUSY) This program was implemented by the Ministry of Ayush(Central Sector Scheme) to improve

India's capabilities in manufacturing and exports , and to facilitate technological and infrastructure up-gradation.

- It improves the regulatory frameworks that allow for efficient monitoring of quality and Pharmaco surveillance of ASU&H drugs through checking for misleading advertising of Ayush medicines and develop standards for accreditation and certification of Ayush's products and materials at BIS, QCI) and other R&D centers.
- AYUSH-- AYUSH is an acronym that stands for Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy and comprise the six Indian medical systems that are widely used and used in India as well as some of the neighbouring Asian countries with only a only a few exceptions in the advanced countries.

Topic 47. PROMOTION OF RENEWABLE ENERGY

Important for subject: Government Schemes

An investigation was carried out by the Central Electricity Authority, Ministry of Power with the intention to estimate what would be the Optimal Generation Capacity mix for 2029-30.

- The results of which were released in January of 2020.
- In the report the estimated electricity generation by the renewable sources of energy was calculated as 39% of total electricity generation in 2029-30.
- The government has taken numerous measures to encourage renewable energy in the country to meet the target to have 500 gigawatts of renewable energy capacity in 2030.
- Allowing Foreign Direct Investment (FDI) up to 100 percent through an automatic process.
- Exemption from Inter State Transmission System (ISTS) fees for interstate sale of wind and solar energy for projects that are to be put into operation in June 2025.
- Declaration of the trajectory of the Renewable Purchase Obligation (RPO) through 2030.
- Establishment the first of Ultra Mega Renewable Energy Parks to provide transmission and land in exchange for RE developers on an "plug and play" basis.
- Schemes such as Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM), Solar Rooftop Phase II, 12000 MW CPSU Scheme Phase II, etc,
- The construction for new transmission lines as well as the creation of new sub-station capacity as part of the Green Energy Corridor Scheme for extraction of renewable energy.
- Establishment of Project Development Cell for attracting and facilitating investment.
- Standards Bidding guidelines for a tariff basis competitive bidding procedure for the purchase of power generated by Grid Connected solar PV as well as Wind Projects.
- The government has issued an order that power will be dispersed to Letter of Credit

(LC) or advance payment in order to ensure timely payment of distribution licensees RE generators.

Topic 48. UNSUNG TRIBAL FREEDOM FIGHTERS

Important for subject: History

Ministry of Culture has released the third Comic book based on stories from the 20 Tribal Freedom Fighters on 2 August, during the Tiranga Utsav festival located in New Delhi.

- Tilka Majhi revolted against the inhumane practices that were committed by The British East India Company. He rallied the tribe of Pahadia that he was part of and robbed the Company Treasury. He was executed.
- ThalakkalChanthu belonging to ThalakkalChanthu of the Kurichiyar tribe was a crucial part of Pazhassi Raja's battle with the East India Company. He was hanged.
- Budhu Bhagat of the Oraon tribe was killed in one of his many encounters with British together with his brother seven sons, and 150 members of his tribe.
- Tirot Singh Tirot Singh, one of the Khasi chief, realized the shadiness that was the British and fought against the British. He was snatched and tortured, and later was incarcerated. He was killed in prison.
- Iv RaghojiBhangre belonged to the Mahadeo Koli tribe.
- He rebelled against the British and fought on even after his mother was in prison. He was rounded up and hanged.
- Sidhu as well as KanhuMurmu members of Sidhu and KanhuMurmu from the Santhal community, who resisted those who were British and their supporters.
- They were the leaders of in the Santhal during the Hul revolt. They both were betrayed, snatched and executed.
- RendoManjhi as well as Chakra Bisoi from the Khond tribe protested against the British interference in their customs.
- Rendo was arrested and hanged, while Chakra Bisoi fled and later died in hiding.
- It was the time that an Indian Uprising in Meerut had started. Nilambar and Pitamber belonging to the Bhogta clan of the Kharwar tribe were motivated to protest and led their tribe to revolt to fight British oppression. Both were arrested and executed.
- Ramji Gond of the Gond tribe rebelled to protest the system of feudalism through which rich landlords oppressed the people in need with the help by the British. He was convicted and hanged,

- Telanga Kharia of the Kharia tribe was adamant against their tax structure of British and their system of governance.
- He demanded that they adhere to their old method of self-government and organized raids on Treasury. He was snubbed and killed.
- Tantiya Bhil also often referred to as Robin Hood of the Central Provinces stole trains that carried British wealth, and then distributed the money among his tribal group, the Bhils.
- He was held and hanged.
- Major PaonaBrajabasi of Manipur was a soldier fighting for the Kingdom of Manipur. He was the Hero of the war between Manipur and England.
- He fought as an lion, but was defeated and killed.
- Birsa Munda from the Munda tribe became a legend during his struggle against the British. He was the leader of the Mundas in several battles against them.
- He was snatched and imprisoned and, according to British reports, died from the disease cholera. He was aged 25 when he passed away.
- MatmurJamoh, a member of the Adi tribe from Arunachal Pradesh, revolted at the arrogance and rudeness of the British.
- He and his comrades gave up their lives to the British when their homes were being burned. They were taken into the Cellular Jail and died there.
- Tana Bhagat, a member of The Oraon tribe was prompted by a divine vision to speak to his people to make them aware of the oppression of their British superiors.
- He was snatched and tortured to death. He was released and was a broken man and then died.
- Malati Mem, a member of the community of Tea-garden was inspired to take part in Mahatma Gandhi's Satyagraha movement.
- She stood up against the British Opium monopoly and educated her citizens regarding the hazards of addiction to opium.
- In the course of an encounter with police she was killed by police.
- Laxman Naik, a member of the Bhuyan tribe was impressed by Gandhi and worked tirelessly for tribes to be part of the movement for freedom.
- The British were able to frame him for the murder of a close friend and then he was hung to death.

- Helen Lepcha of the Lepcha tribe was a fervent adherent to Mahatma Gandhi. Her influence on her tribe led to the British anxious.
- She was attacked, imprisoned and chased, however she never lost her courage.
- In 1941, she helped Netaji Subhas Chandra Bose escape from house arrest, and then travel to Germany.
- She was presented with her the Tamra Patra for her invaluable contribution to the struggle for freedom.
- Pulimaya Devi Podar listened to Gandhi while she was at school, and she wanted to fight for freedom as soon as she could.
- Despite being admonished by her family, she was a part of the movement following her studies. She also encouraged other women to join in.
- She was imprisoned due to her role in protests.
- After her return to independence, she continued to help her people and was given the title of "Swatantra Sainani".

Topic 49. PINGALI VENKAYYA

Important for subject: History

PM, Shri Narendra Modi paid tribute on behalf of Pingali Venkayya on his birth anniversary.

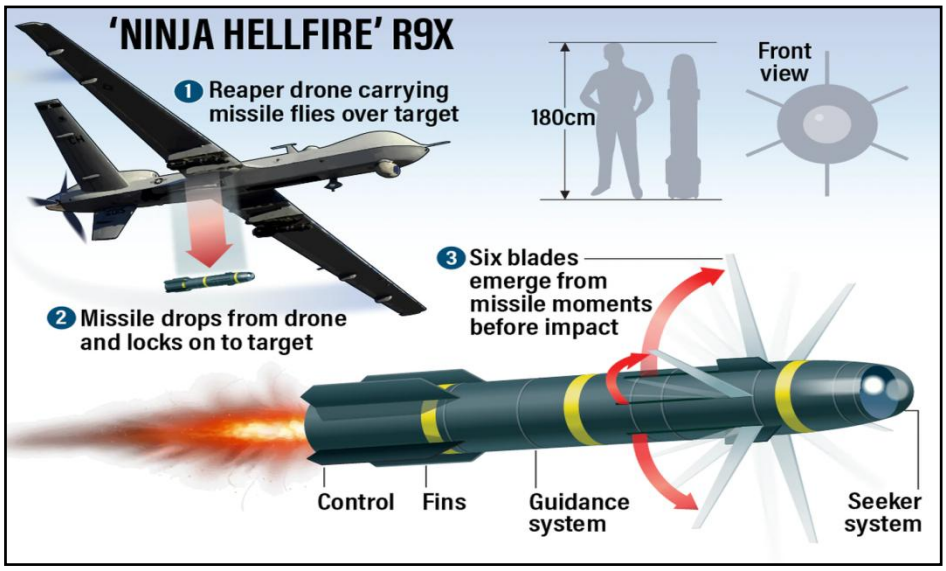
- PingaliVenkayya was born on the 2nd August 1876 in the Bhatlapenumarru village in Andhra Pradesh.
- PingaliVenkayya was an agriculturist as well as an educator who established an educational institute in Machilipatnam.
- In the course of his time within South Africa at the time of the Anglo Boer war,Venkaya served as an Anglo Boer war soldier. British soldiers in the army.
- Venkayya was extremely dedicated and loyal to Gandhi and was a staunch believer of Gandhian beliefs.
- He released an informational booklet about flags. The book was called "A National Flag for India.'
- It had 24 design of flags. In 1921, when he was meeting Gandhi in Vijayawada the city, he handed the publication to him.
- Gandhi was thrilled to see the design . He also recognized the necessity of a national flag and demanded Venkayya to design a new one for the National Congress Meeting,

held in 1921.

- Initially, PingaliVenkayya-designed the flag featured saffron and green colours only (called the swaraj flag) ; however, later, it was redesigned, and the third colour, white, was introduced along with a spinning wheel (Dharma Chakra) at the centre.
- After several modifications after which after undergoing several changes, the Tricolour became the flag of our nation during an Congress Committee meeting in Karachi in 1931.
- The Indian flag was adopted in its current shape at a session in the Constituent Assembly held on July 22nd in 1947. The Indian was stricken with poverty in 1963.

Topic 50. HELLFIRE R9X MISSILE: THE DRONE MISSILE WITH RAZOR-SHARP BLADES USED TO KILL AYMAN AL-ZAWAHIRI

Important for subject: Defence



The US military used their'secret weapon' - its Hellfire R9X rocket in order to eliminate Al Qaeda head Ayman al-Zawahiri from the balcony of the safehouse in Kabul on July 31.

- **What exactly is the Hellfire R9X missile?**
- It is more popular in the military community by the name of the AGM-114 R9X the Hellfire R9X is an US origin missile which is believed to cause minimal collateral damage when it engages particular targets.
- Also known as the "Ninja Missile The weapon is not equipped with an actual warhead, but instead uses sharp blades with razor-sharp edges at the final point of its attack.

- It is able to penetrate even the most massive steel sheets and cut through the target using the energy generated by its propulsion. It does not cause harm to anyone who are in the immediate vicinity, or the structure of the building.
- The blades break free of the missile, cutting down the intended target but without damaging the surrounding area, as is the case for a missile with the explosive warhead.
- **What year did Hellfire missile begin into active service?**
- This Hellfire missile is believed to be active since.
- But, its existence became known to the public after two years in the year 2019.
- It is a variation of the Hellfire missile family, which is utilized in its standard form with warheads.
- It is typically used by the ground, helicopters as well as small vessels as well as fast-moving vessels.
- Since a few years for a few years, for a long time, the Hellfire group of missiles which includes"Ninja Missile" are equipped by Combat Unmanned Aerial Vehicles or drones which are used by the US Military uses in offensive military operations all over the world.
- **Where is the Hellfire missile served in the past?**
- In 2017 the "Ninja Missile" was believed to have killed the former No. No. 2 figurehead of Al Qaeda, Abu Khayr Al Masri in Syria.
- It was also employed against other targets in Syria in the exact same time.
- The extent of damage to vehicles carrying the targets, especially the damaged roofs of vehicles, provided the first indications that a warhead of normal design was not employed for the missile, and that it was equipped with sharp blades.
- It was also employed in the past against Taliban target groups in Afghanistan in the year 2020, and then again in 2022.
- **What do we know about the other Hellfire missiles?**
- Hellfire is actually an abbreviation that stands for Heliborne, Laser, Fire and Forget Missile and was created by the US initially to attack tanks that were part of Apache AH-64 attack helicopters.
- Later, the use of these missiles grew to other types of helicopters, as well as system that was based on the sea or ground, as well as drones.

- Created in collaboration with Lockheed Martin and Northrop Grumman and Northrop Grumman, the Hellfire missile is available in other variants like 'Longbow' or Romeo in addition to the "Ninja".