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for

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1. Geography

Click on the links given below to watch the following questions on YouTube

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1.1.Geospatial Practices for Sustainable Development in Asia and the Pacific 2020

- 'Geospatial data' means data that has a geographic component to it.
- This means that the records in a dataset have locational information tied to them such as geographic data in the form of coordinates, address, city and PIN code.
- Geospatial Practices for Sustainable Development in Asia and the Pacific 2020 was released virtually by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).
- Geospatial data, along with the existing statistics, were providing Asia-Pacific countries, with an additional layer of information to monitor the progress of the United Nations-mandated Sustainable Development Goals (SDG).
- However, despite advances in the availability and quality of geospatial information, several gaps and challenges remained for its effective use at the regional and national levels.

Beyond COVID-19

- The report noted that the world had faced the COVID-19 pandemic in 2020, which had put further strain on already fragile development efforts.
- None of the UNESCAP member nations were on track to fully achieve the SDGs in the next decade.

- To elaborate on this, the UN report included 100 best practices from over 25 countries in the Asia-Pacific region including India.
- These underline the importance of using space technology and the geospatial information to support the SDGs.

Praise for India

- The report cited the role being played by 'BHUVAN', India's national geo-portal developed and hosted by the Indian Space Research Organisation (ISRO) in combating COVID-19.
- It also appreciated the water resource information system led by ISRO.
- It showed how some other Asian countries — Thailand, Indonesia, China — had rapidly responded to the COVID-19 pandemic, leveraging geospatial information to aid in contract tracing, hotspot mapping and policy impact analysis, among others.
- India was also been appreciated for making significant progress in responding to the demands of today's cities by incorporating robust space technologies and Geographic Information System into the urban planning, transport management and traffic navigation techniques.
- The report also flagged the role of the UN-led 'Space+' initiative that focuses on strengthening implementation through enhanced partnership with global and regional stakeholders.
- Despite the progress, re-skilling of young workers and investments to strengthen their technological skills will be essential to support sustainable development and resilience in the Asia-Pacific region, the UNESCAP report said.

1.2.ADMM-Plus

- Vietnam has invited India for ASEAN Defence Ministers' Meeting-Plus (ADMM Plus) being hosted by Vietnam in December 2020.
- The ADMM-Plus is a platform for ASEAN and its eight Dialogue Partners to strengthen security and defence cooperation for peace, stability, and development in the region.
- Eight Dialogue Partners are Australia, China, India, Japan, New Zealand, Republic of Korea, Russia and the USA (collectively referred to as the "Plus Countries").
- Agreed five areas of practical cooperation under this mechanism are:
  - ✓ Maritime security, counter-terrorism, humanitarian assistance and disaster relief, peacekeeping operations and military medicine
- A new priority area of humanitarian mine action was agreed in 2013.

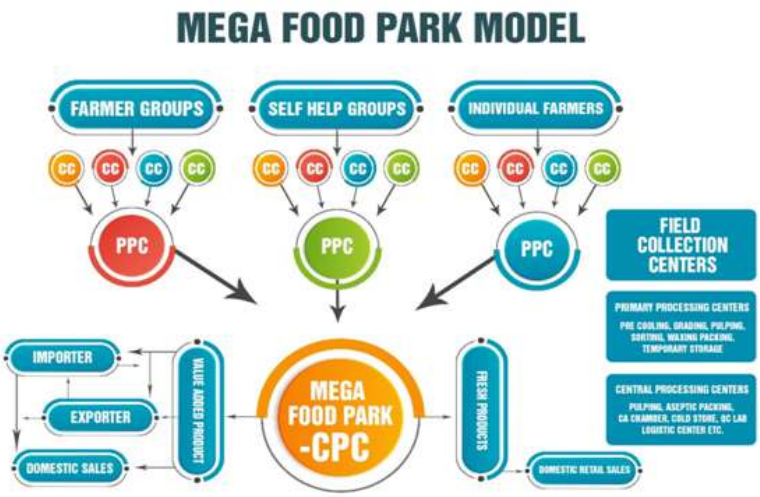
- It aims to promote mutual trust and confidence between defence establishments through greater dialogue and transparency.
- The first ADMM-Plus was convened at Ha Noi, Vietnam in 2010.
- 2nd ASEAN Defence Ministers' Meeting (ADMM) in 2007 at Singapore adopted a resolution to establish the ADMM-Plus.
- The chairmanship of the ADMM-Plus follows the chairmanship of the ADMM.

1.3.Re- Invest

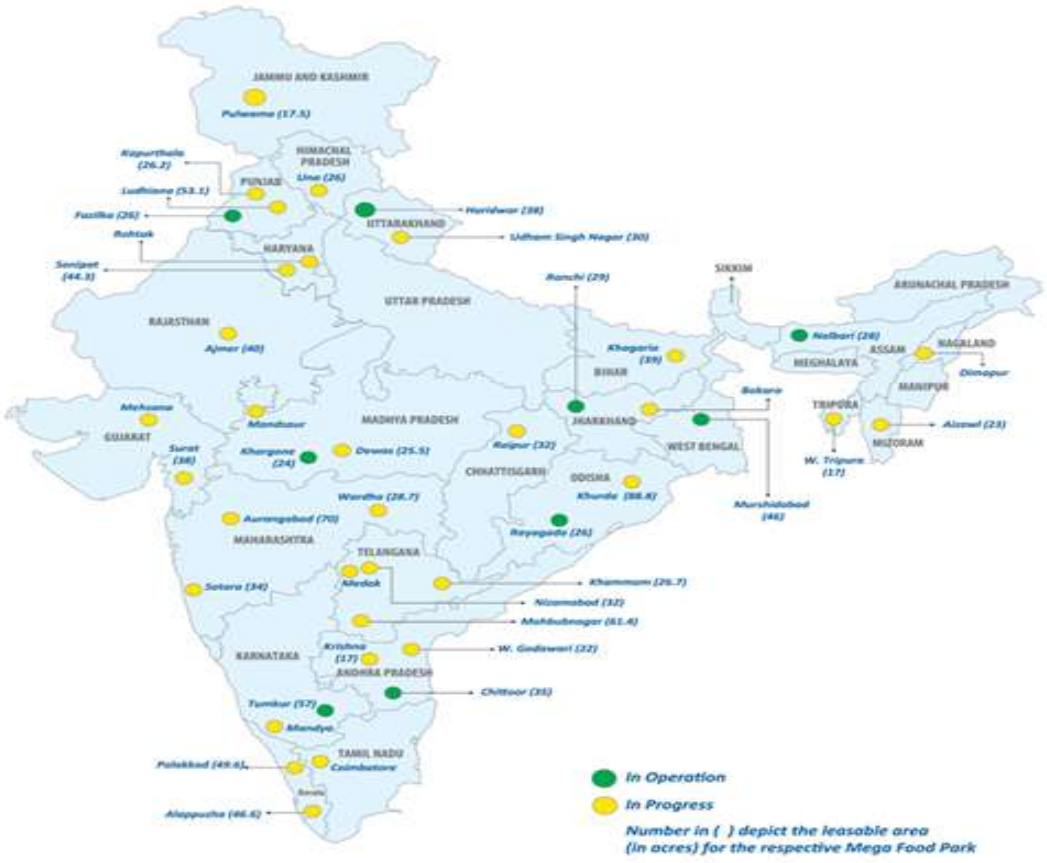
- 3rd Global Renewable Energy Investment Meeting and Expo (RE-Invest 2020) was inaugurated recently.
- The summit is organised by the Ministry of New and Renewable Energy.
- The theme for 2020 is 'Innovations for Sustainable Energy Transition'.

1.4.Mega Food Park

- Union Food Processing Ministry recently inaugurated a mega food park (MFP) at Phagwara in Kapurthala district of Punjab that will benefit 25,000 farmers and create 5,000 jobs.
- This MFP is built at project cost of Rs 107.83 crores and spread over 55 acres of land is expected to benefit about 25000 farmers.
- Punjab has been ahead in production of rice and wheat however, due to reduced ground water levels, diversification of crops is required.



- Food processing sector needs to be focused upon so that farmers get fair prices and related sectors can also benefit.
- The Sukhjit mega food park is equipped with warehouses, silos, cold storage, deep freezer and other related food processing facilities.
- A Rs 10,000 crore fund has been created under Aatmanirbhar Bharat, for development of food processing sector which will benefit farmers and create employment opportunities.



The above MAP depicts only pictorial representation of India and the States of India and does not purport to be the political map of India or its states and are not drawn to scale and are only impression of Mega Food Parks in India.

1.5.Merchant Shipping Bill draft issued

- The Ministry of Ports, Shipping and Waterways has issued a draft of the Merchant Shipping Bill, 2020 with all updated International Maritime Organisation Conventions, to which India is a party.
- It has provisions to ensure the safety and security of vessels, safety of life at sea, prevent marine pollution, provide for maritime liabilities and compensations, and ensure comprehensive adoption of India's obligations under International Conventions.
- To improve welfare of Indian seafarers on abandoned vessels and safety of such vessels, the Bill has provisions for repatriation of abandoned seafarers have been enhanced, in line with the Maritime Labour Convention regulations.
- The Merchant Shipping Bill, 2020 has been drafted to promote growth of Indian shipping industry by incorporating the best practices adopted by other advanced countries such as the US, Japan, UK, Singapore and Australia, it added.

Ease of doing business

- Specifically, to promote ease of doing business, the Bill does away with requirement of general trading license for Indian vessels.
- It enables electronic means of registration, and grants statutory recognition to electronic agreements, records, and log-books, in addition to electronic licenses, certificates and payments.
- It has clauses to increase India's tonnage and to make the vessel a tradeable asset.
- To promote India as a bankable shipping jurisdiction and avoid situations leading to wreck, the proposed Bill seeks to introduce for the first-time statutory framework for regulating maritime emergency response against maritime incidents.
- The provisions seek to provide for time effective implementation of response mechanisms in order to prevent such incidents from becoming a wreck or catastrophe.
- To strengthen the investigation and adjudication of claims arising out of collision of vessels, assessors may be tasked by the High Courts to present their findings on the degrees of fault of each vessel.
- To make India an active enforcement jurisdiction, the Bill incorporates powers of the Director-General to take action against vessels that are unsafe, and pose a threat to safety of life at sea and environment, and includes a procedure for appeal from detention orders.
- The Bill also encourages active enforcement of pollution prevention standards.
- Central Government has been granted the power to mandate compulsory insurance or such other financial security, for pollution damage.

1.6.National Maritime Domain Awareness (NDMA) Centre

- The Navy's Information Management and Analysis Centre (IMAC), the nodal agency for maritime data fusion set up after the 26/11 Mumbai terror attacks, will soon become a National Maritime Domain Awareness (NDMA) centre.
- It was approved by the Defence Acquisition Council in 2012.
- The IMAC became operational in 2014 at a cost of ₹450 crore and is located in Gurugram.

- It is the nodal centre of the National Command Control Communication and Intelligence System (NC3I), which was established to link the operational Centres and lower echelons of the Navy and the Coast Guard spread across the country's coastline, including the island territories.
- The IMAC tracks vessels on the high seas and gets data from the coastal radars, white shipping agreements, Automatic Identification Systems (AIS) transponders fitted on merchant ships, air and traffic management system and global shipping databases.
- After the 26/11 terror attack, all fishing vessels more than 20m long were mandated to have AIS transponders installed, while efforts were on to have such system on under 20m fishing vessels as well.
- At any point of time there are around 11,000-12,000 vessels present in the Indian Ocean Region (IOR) as of now, which shows the magnitude of the challenge in tracking vessels.

Maritime traffic transparency

- As part of improving transparency on maritime traffic on the high seas, the Navy had been authorized to conclude white shipping agreements with 36 countries and three multilateral constructs.
- Under Phase-I, 46 coastal radar stations were set up.
- Phase-II of the coastal radar chain network, under which 38 static radar stations and four mobile radar stations were being set up by the Coast Guard and they were in advanced stage of completion.
- In 2018, the Information Fusion Centre – Indian Ocean region (IFC-IOR) was set up within the premises of the IMAC to coordinate with regional countries on maritime country and act as a regional repository of maritime data.
- It presently has linkages with 21 partner countries and 22 multi-national agencies across the globe.

1.7.China to Build Major Dam on Brahmaputra

- Context: China will build a major hydropower project on Brahmaputra River in Tibet and a proposal for this has been put forward in the 14th Five-Year Plan to be implemented from next year.
- China will implement hydropower exploitation in the downstream of the Yarlung Zangbo River (the Tibetan name for Brahmaputra).
- The project was put forward in the proposals for formulating the country's 14th Five-Year Plan (2021-25) and its long-term goals through 2035 made by the Central Committee of the ruling Communist Party of China (CPC).
- As a lower riparian State with considerable established user rights to the waters of the trans-border rivers, the Indian government has consistently conveyed its views and concerns to the Chinese authorities and has urged them to ensure that the interests of downstream States are not harmed by any activities in upstream areas.
- The 60 million kWh hydropower exploitation at the downstream of the Yarlung Zangbo River could provide 300 billion kWh of clean, renewable and zero-carbon electricity annually.
- The project will play a significant role in realising China's goal of reaching a carbon emissions peak before 2030 and carbon neutrality in 2060.

- India and China established Expert Level Mechanism (ELM) in 2006 to discuss various issues related to trans-border Rivers.

Concerns for India

- China's dam building overdrive is a concern because there are no bilateral or multilateral treaties on the water.
- China believes dam building on the Brahmaputra helps it assert claim over Arunachal Pradesh.
- India believes China's projects in the Tibetan plateau threaten to reduce river flows into India.
- Dams, canals, irrigation systems can turn water into a political weapon to be wielded in war, or during peace to signal annoyance with a co-riparian state.
- Denial of hydrological data becomes critical when the flow in the river is very high.
- China is contemplating northward re-routing of the Yarlung Zangbo.
- Diversion of the Brahmaputra is an idea China does not discuss in public, because it implies devastating India's north-eastern plains and Bangladesh, either with floods or reduced water flow.
- In 2013, India complained to China about its hydro projects on the Brahmaputra.
- India and China signed two pacts in 2008 and 2010 which facilitated India with data on water levels and rainfall twice a day from June 1 to October 15 at three hydrological stations in Tibet.
- In 2001, an artificial dam in Tibet collapsed and killed 26 people and damaged property of Rs 140 crore along the river Siang in Arunachal Pradesh.

The Lalho project

- The Lalho project on the Xiabuqu River in Xigaze (close to Sikkim) is underway at an investment of $740 million.
- Xigaze is a few hours from the junction of Bhutan and Sikkim. It is also the city from where China intends to extend its railway towards Nepal.
- China's first dam on the main upper reaches of the Brahmaputra was built at Zangmu in 2010.
- Three more dams at Dagu, Jiacha, and Jeixu (small-scale projects) are under construction.
- In 2015, China inaugurated the Zam Hydropower Station, largest in Tibet, the highest dam built on Brahmaputra.

The Tributary that was blocked

- The Xiabuqu River, 195-km long, flows from Bainang in Tibet northwards and joins the Yarlung Zangbo near the region called Xigaze, also known as Shigatse.
- This tributary was blocked for the Lalho hydel project that launched in June 2014.

1.8.Bangladesh begins Rohingya relocation despite rights concerns

- Context: Authorities in Bangladesh have begun relocating thousands of Rohingya refugees to an isolated island despite calls by human rights groups for a halt to the process.

- Police escorted the refugees from Cox's Bazar for to Bhasan Char – a flood-prone island that emerged from the sea 20 years ago.
- Bangladesh says transporting refugees to Bhasan Char – a Bay of Bengal island hours from the mainland by boat – will ease chronic overcrowding in its camps at Cox's Bazar, which are home to more than one million Rohingya.
- The UN in a statement has said: "[Any] relocations to Bhasan Char should be preceded by comprehensive technical protection assessments."
- Humanitarian and human rights groups have said the island is flood-prone and vulnerable to frequent cyclones, while the government has not allowed the United Nations to carry out a safety assessment.

Myanmar crackdown

- More than 730,000 Rohingya fled Myanmar in 2017 following a military-led crackdown that the UN has said was executed with genocidal intent.
- Myanmar denies it carried out genocide and says its forces were taking aim at Rohingya rebels who attacked police posts.

Who are Rohingya?

- Rohingya are an ethnic group, largely comprising Muslims, who predominantly live in the Western Myanmar province of Rakhine.
- They speak a dialect of Bengali, as opposed to the commonly spoken Burmese language.
- Though they have been living in the South East Asian country for generations, Myanmar considers them as persons who migrated to their land during the Colonial rule.
- So, it has not granted Rohingyas full citizenship.
- According the 1982 Burmese citizenship law, a Rohingya (or any ethnic minority) is eligible for citizenship only if he/she provides proof that his/her ancestors have lived in the country prior to 1823.
- Else, they are classified as "resident foreigners" or as "associate citizens" (even if one of the parent is a Myanmar citizen).
- Since they are not citizens, they are not entitled to be part of civil service.

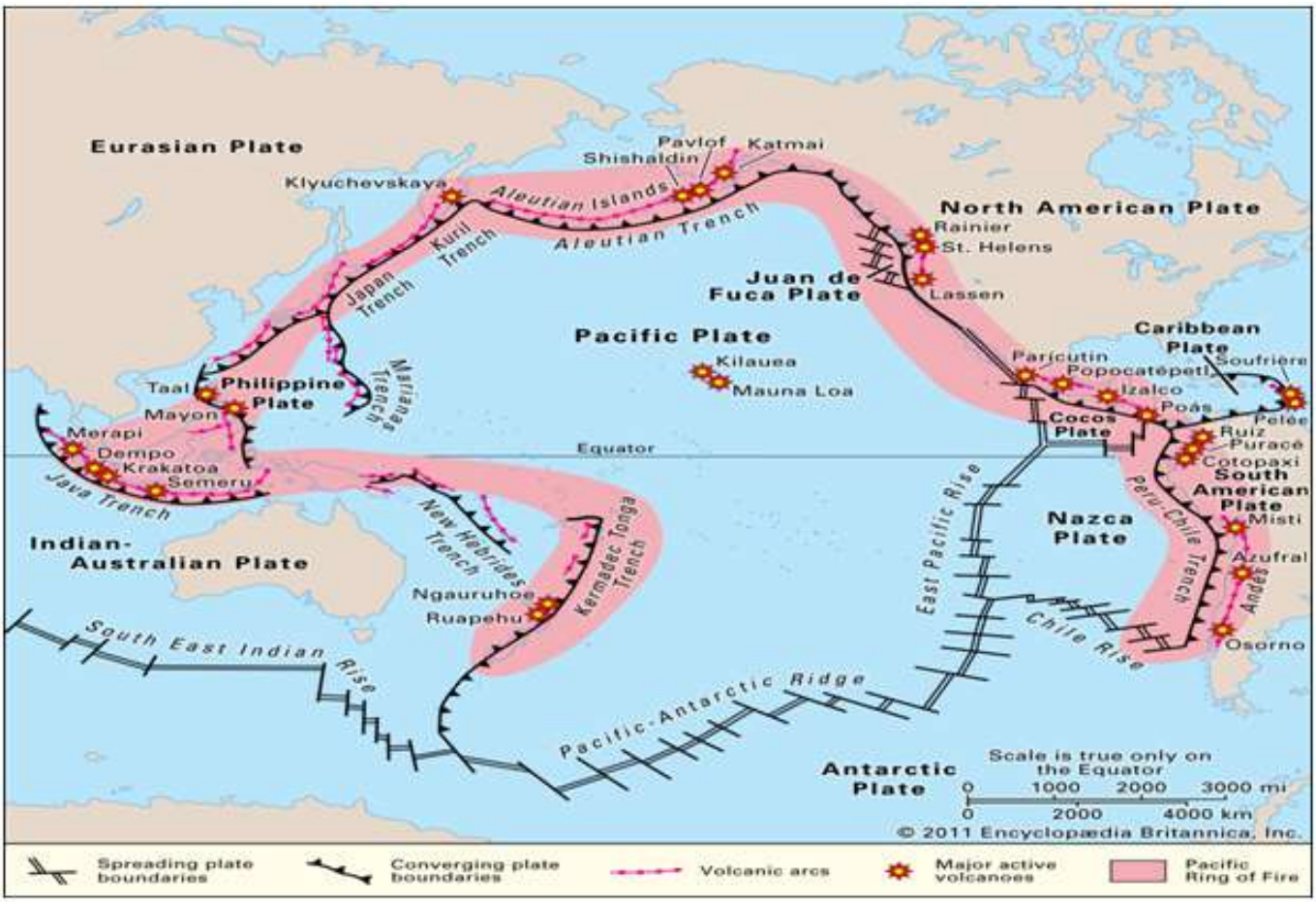
- Their movements are also restricted within the Rakhine state.

1.9.Indonesia's Mount Ili Lewotolok eruption

- Indonesia's Mount Ili Lewotolok erupted, releasing a column of smoke and ash 2.5 miles (4km) into the sky.
- A 1.2-mile no-go zone around the crater was also expanded to 2.5 miles
- Indonesia is home to about 130 active volcanoes due to its position on the Ring of Fire, a belt of tectonic plate boundaries circling the Pacific Ocean where frequent seismic activity occurs.
- In late 2018, Anak Krakatau, a volcano in the strait between Java and Sumatra islands, erupted and caused an underwater landslide that unleashed a tsunami, killing more than 400 people.

Pacific Ring of Fire

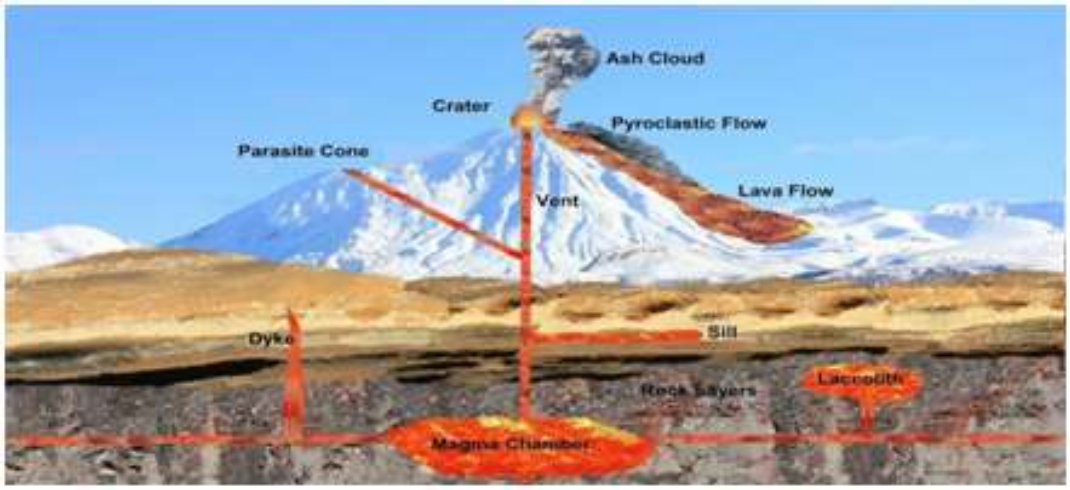
- Circum-Pacific Belt or Pacific Ring of Fire, long horseshoe-shaped seismically active belt of earthquake epicentres, volcanoes, and tectonic plate boundaries that fringes the Pacific basin.
- For much of its 40,000-km (24,900-mile) length, the belt follows chains of island arcs such as Tonga and New Hebrides, the Indonesian archipelago, the Philippines, Japan, the Kuril Islands, and the Aleutians, as well as other arc-shaped geomorphic features, such as the western coast of North America and the Andes Mountains.
- Volcanoes are associated with the belt throughout its length; for this reason it is called the "Ring of Fire."



- A series of deep ocean troughs frame the belt on the oceanic side, and continental landmasses lie behind.
- Most of the world's earthquakes, the overwhelming majority of the world's strongest earthquakes, and approximately 75 percent of the world's volcanoes occur within the Ring of Fire.

Volcanoes

- Volcanoes erupt when molten rock called magma rises to the surface. Magma is formed when the earth's mantle melts.
- Melting may happen where tectonic plates are pulling apart or where one plate is pushed down under another.
- Magma is lighter than rock so rises towards the Earth's surface. As the magma rises, bubbles of gas form inside it.
- Runny magma erupts through openings or vents in the earth's crust before flowing onto its surface as lava.
- If magma is thick, gas bubbles cannot easily escape and pressure builds up as the magma rises.
- When the pressure is too much an explosive eruption can happen, which can be dangerous and destructive.
- Another way an eruption happens is when water underneath the surface interacts with hot magma and creates steam,
- This can build up enough pressure to cause an explosion.



1.10.Draft National Policy for Flying Drones

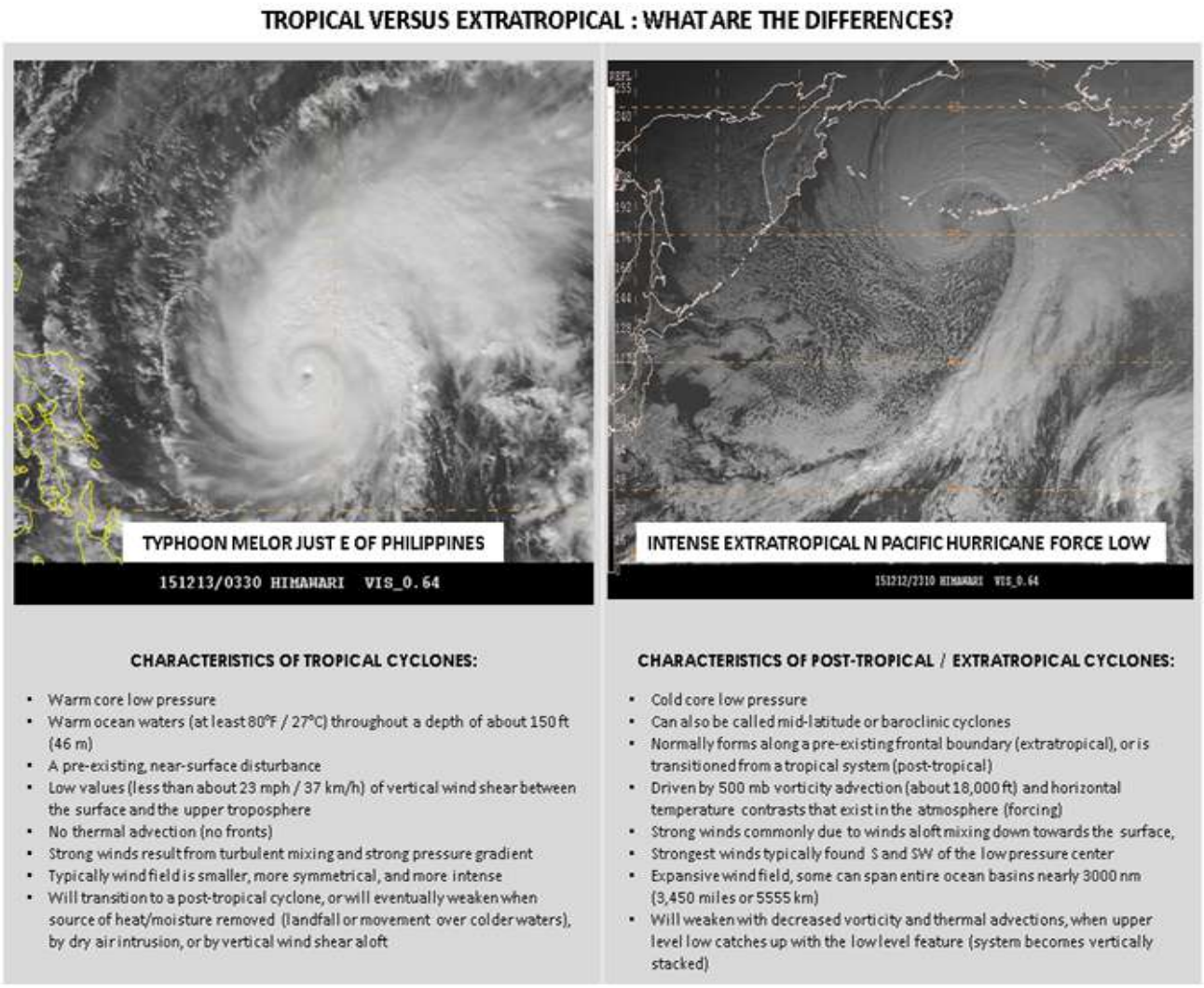
- Context: The policy is designed to cover flight planning capabilities and authorisation, as well as offer real-time situational awareness, weather and terrain data, and also help manage Unmanned Aircraft System (UAS) traffic.
- To carve out a national policy on flying drones, the government has invited public comments from stakeholders on this.
- The policy proposal was aimed to use drones to fly alongside manned aircraft (scheduled and non scheduled and other aircraft flying in the sky)
- The need for UTM Systems is now being felt as drones will soon need to fly alongside manned aircraft so there is a need to maintain high levels of aviation safety in such scenarios, apart from which integrating drones in current Air Traffic Management (ATM) systems may be complex and expensive.
- This draft document comes in the backdrop of several instances globally of drones coming in the way of aircraft taking off or landing at busy airports affecting their operations.
- In January last year, Heathrow airport in London had to shut its operations for an hour because of a drone sighting. BBC cited a Heathrow spokeswoman as saying that this was done a "precautionary measure" to "prevent any threat to operational safety."
- A month earlier there was another disruption at Gatwick Airport which saw thousands of people stranded when drones were sighted.
- Similarly, in 2016, the world's busiest airport at Dubai was shut down for about 30 minutes after a drone was sighted.
- In India, drones are already being used by various institutions including by the Police which used drones to ensure that lockdown rules were implemented during the COVID pandemic.
- In November, the Ministry of Civil Aviation and the Directorate General of Civil Aviation granted conditional exemption to the International Crops Research Institute (ICRISAT) in Hyderabad for the deployment of drones for agricultural research activities.
- As such, the proposed policy would not only help uphold the necessary levels of aviation safety but also integrate drones into the current Air Traffic Management (ATM) systems.

1.11.Why Cyclone Burevi won't be as strong as Cyclone Nivar

- Context: Seven days after Cyclone Nivar hit the Karaikal coast, another cyclone, Burevi, named by the Maldives, is expected to cross Tamil Nadu's southernmost district of Kanyakumari later this week.
- This is the third cyclone formed within the last 10 days in the Arabian Sea and the Bay of Bengal, put together.
- The India Meteorological Department (IMD) has warned of heavy rain for Tamil Nadu and Kerala till December 5.
- The cyclone was located 200 km east of Trincomalee in Sri Lanka, 420 km east-southeast of Pamban and 600 km east-northeast of Kanyakumari in Tamil Nadu.
- Under the influence of this cyclone, heavy to extremely heavy rain (over 204 mm) is forecast in Tamil Nadu and Kerala till December 5.
- As a cyclonic storm, Burevi is expected to first cross the Sri Lankan coast near Trincomalee, later it will trace a west-north-westwards track, reach Gulf of Mannar and inch closer to Indian mainland's southernmost tip.
- The Met department has forecast that Burevi will cross between Kanyakumari and Pamban as a cyclonic storm (wind speed 78 to 80 km/hour, gusting to 100 km/hour)

Will Cyclone Burevi be as strong as Cyclone Nivar?

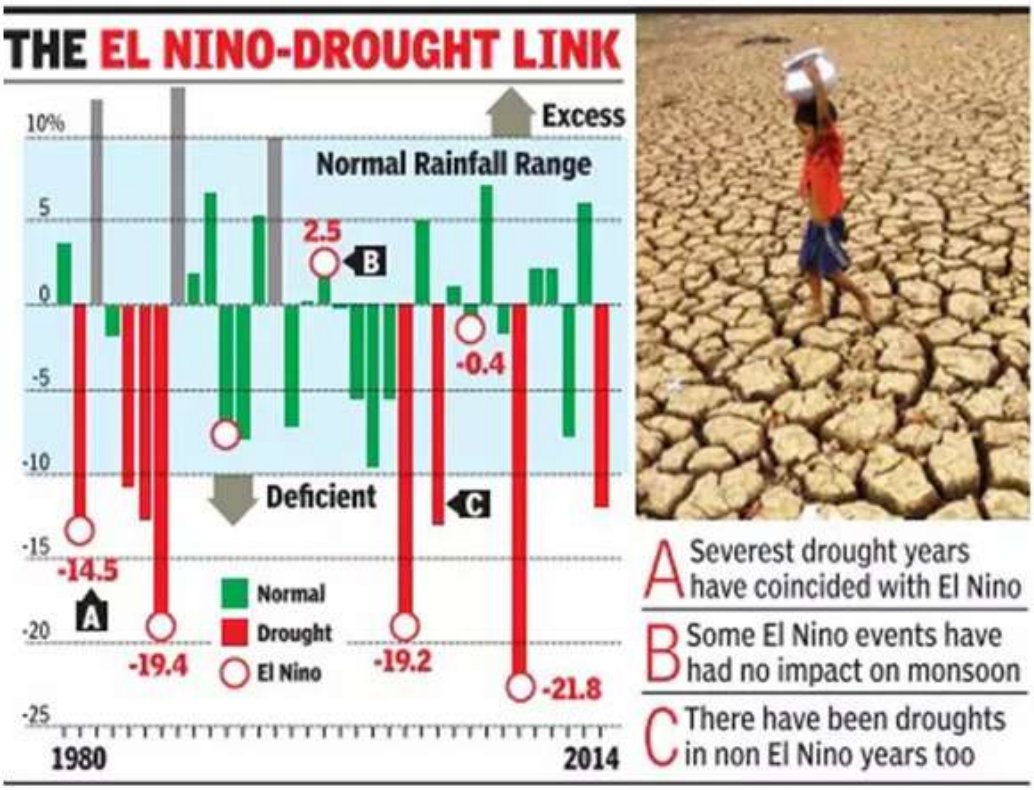
- Developed in the Bay of Bengal, the very severe cyclone Nivar, with wind speeds of 89 to 117 km/hr, had hit near Karaikal on November 25.
- Unstable sea conditions, in the southwest region of Bay of Bengal, continue due to the recent crossing of Nivar.
- The overall sea conditions currently remain disturbed.
- This is why there is a high possibility that Cyclone Burevi would not strengthen beyond the intensity of a cyclonic storm.
- Due to upwelling caused by Nivar, Cyclone Burevi will have limited intensity.
- When such consecutive systems develop in the same region of the ocean, the predecessor system leads to upwelling — the process in which cooler waters from lower ocean surfaces are pushed towards upper ocean surfaces.
- In the absence of warm sea surface conditions, any cyclone, in this case Burevi, will not get enough fuel to intensify further while at sea.
- The IMD has indicated that Burevi will remain a cyclonic storm (wind speed 62 to 88 km/hr) till December 5, before it weakens into a deep depression.

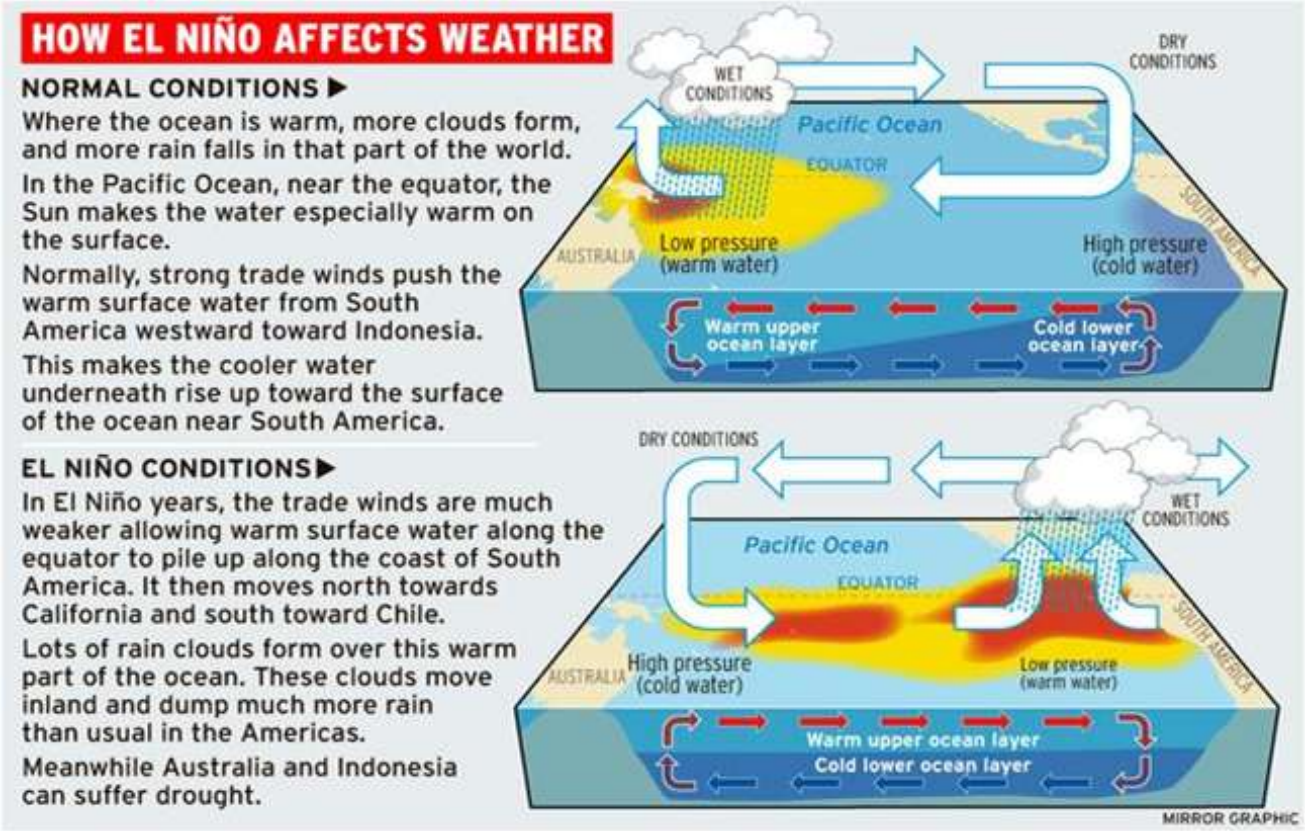


1.12.El Nino alone not reason for droughts: IISc study

- Context: A new study carried out by researchers of the Indian Institute of Science's (IISc) Centre for Atmospheric and Oceanic Sciences (CAOS) has found that El Niño alone is not be blamed for droughts in the Indian subcontinent.
- The study has found that nearly half of the droughts that occurred during the Indian summer monsoon season in the past century may have been driven by atmospheric disturbances from the North Atlantic region.
- 10 out of 23 droughts that India witnessed in the past century have occurred during years when El Niño was absent.
- These droughts may all have a different type of evolution than El Niño droughts, as well as a common cause, which is this mid latitude influence.
- The droughts that happen during an El Niño year follow a standard pattern. The rainfall deficit, departure from a long-term average sets in early around mid-June and becomes progressively worse.
- By mid-August, the deficit spreads across the country and there is no going back from a drought.
- The droughts during the non-El Niño years, when analyzed together, also seemed to follow a common pattern.

- First, there was a moderate slump in June. Then, during mid-July to mid-August the peak of the season, the monsoon, showed signs of recovery and the rainfall increased.
- Around the third week of August, there was a sudden steep decline in rainfall, which resulted in drought conditions





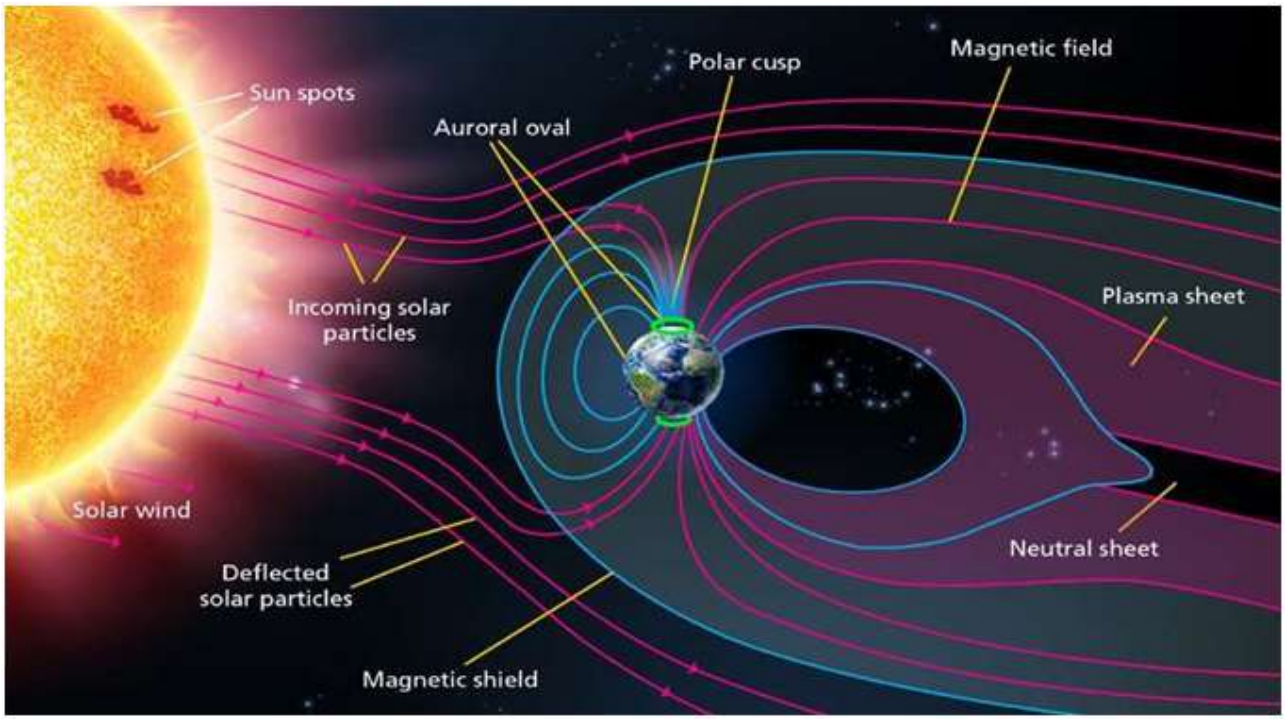
- It was observed that some droughts during monsoon season in India are due to unique North Atlantic disturbances.
- The monsoon season in India runs generally from June to September each year.
- Previous research has shown that El Niño events almost always lead to dry monsoon seasons, but not all dry seasons are due to El Niño events.
- In this new effort, the researchers sought to learn more about other events that might impact monsoon season rains. Their work involved obtaining and analyzing weather data for South Asia over the past 100 years.
- These disturbances, they also found, resulted in the development of currents that disturbed the factors that normally lead to the heavy rains typically associated with monsoon season in South Asia.
- They were not able to explain the nature of such disturbances, however, except to note that they involved winds from the upper atmosphere mixing with cyclonic circulation over the cold water of the North Atlantic.

1.13.Northern Lights

- Northern Lights, also known as Aurora Borealis, are usually witnessed far up in the polar regions or the high latitude regions of Europe, like in Norway.
- But they were also visible in northern parts of Illinois and Pennsylvania in the US.
- This happened due to a solar flare, which emerged from a Sunspot.
- The flare is accompanied by a Coronal Mass Ejection (CME) — a large bubble of radiation and particles emitted by the Sun that explodes into space at high speed.
- The Space Weather Prediction Center at the US National Oceanic and Atmospheric Administration (NOAA) said the electromagnetic storm could be growing to major status causing the Northern Lights to be visible in more number of areas than usual.

What causes an aurora?

- Auroras occur when charged particles ejected from the Sun's surface — called the solar wind — enter the Earth's atmosphere.
- While flowing toward Earth, the fast-moving solar wind carries with it the Sun's magnetic field, which disrupts the magnetosphere — the region of space around Earth in which the magnetic field of our planet is dominant.
- When the Sun's magnetic field approaches Earth, the protective magnetic field radiating from our planet's poles deflects the former, thus shielding life on Earth.
- However, as this happens, the protective fields couple together to form funnels, through which charged solar wind particles are able to stream down to the poles.



- At the north and south poles, the charged particles interact with different gases in the atmosphere, causing a display of light in the sky.
- This display, known as an aurora, is seen from the Earth's high latitude regions (called the auroral oval), and is active all year round.
- In the northern part of our globe, the polar lights are called aurora borealis or Northern Lights, and are seen from the US (Alaska), Canada, Iceland, Greenland, Norway, Sweden and Finland.
- In the south, they are called aurora australis or southern lights, and are visible from high latitudes in Antarctica, Chile, Argentina, New Zealand and Australia.
- Generally, the auroral oval is confined to the polar regions.

What are the examples of high solar activity?

- Solar activities include solar flares, solar energetic particles, high-speed solar wind and Coronal Mass Ejections (CME).
- These influence the space weather which originates from the Sun.
- The NOAA's Space Weather Prediction Center has forecasted a Level G3 or "strong" storm, making it possible for auroral displays to be visible in relatively lower latitudes, such as in the US cities of Chicago, Detroit, Boston and Seattle.
- This geomagnetic storm is ranked third on the five-point scale used to measure geomagnetic storms.
- As per the NOAA, a G3 storm can require voltage corrections to be made in power systems, and false alarms can be triggered on some protection devices.
- Large storms usually occur at the peak of the 11-year solar cycle, or during the three years after the peak.

Can solar flares or storms be dangerous?

- Solar flares can typically affect space-dependent operations like Global Positioning Systems (GPS), radio and satellite communications, besides hampering flight operations, power grids and space exploration programmes.

1.14.Mount Everest

- Context: The Foreign Ministers of Nepal and China jointly certified the elevation of Mount Everest at 8,848.86 metres above sea level — 86 cm higher than what was recognised since 1954.
- The common declaration meant that the two countries have shed their long-standing difference in opinion about the mountain's height — 29,017 feet (8,844 m) claimed by China and 29,028 ft (8,848 m) by Nepal. In feet, the new elevation is about 29,031 ft, or about 3 ft higher than Nepal's previous claim.
- No other mountain has perhaps been the subject of as much debate. Over the years, there have been debates on issues like whether it should be "rock height", or whether the snow cladding it, too, should be accounted for.

How and when was the earlier measurement of 8,848 m done?

- This was determined by the Survey of India in 1954, using instruments like theodolites and chains, with GPS still decades away.
- The elevation of 8,848 m came to be accepted in all references worldwide — except by China.
- Mount Everest rises from the border between Nepal and China.
- There was also a third estimate, even higher. In 1999, a US team put the elevation at 29,035 feet (nearly 8,850 m).
- This survey was sponsored by the National Geographic Society, US.
- The Society uses this measurement, while the rest of the world, except China, had accepted 8,848 m so far.

When was the new measurement done?

- Nepal's earthquake of April 2015, triggered a debate among scientists on whether it had affected the height of the mountain.
- The government subsequently declared that it would measure the mountain on its own, instead of continuing to follow the Survey of India findings of 1954.
- New Zealand, which shares a bond with Nepal over the mountain, provided technical assistance.
- In May 2019, the New Zealand government provided Nepal's Survey Department (NapiBibhag) with a Global Navigation Satellite, and trained technicians. Christopher Pearson, a scientist from University of Otago, travelled to Nepal on a special assignment.

How did China come to be part of it?

- China's measurements were done separately.

- The team of 120 (field workers and data analysts) was processing the data and computing results, which took four months, when the pandemic disrupted its work.
- The two sides subsequently signed a memorandum of understanding to jointly make public their results. The Chinese side conducted its measurements early this year.

1.15.India's New Maritime Command

- Context: The Vice Chief of Naval Staff (VCNS) is expected to hand over the study related to the formation of the Maritime Theatre Command (MTC) to the CDS shortly.

Background

- Indian Armed Forces released the Joint Doctrine in 2017 elaborating various Military objectives like preventing war through strategic and conventional deterrence across the full spectrum of military conflict, to defend the nation and its interests and sovereignty.
- Presently, the Army and the Air Force each have seven existing commands.
- The Indian navy is deployed under three area commands, each headed by a flag officer.
- Various inter-service commands and institutions such as the Strategic Forces Command, the Andaman and Nicobar Command and the Integrated Defense Staff (IDS) are already operational.
- The joint-services Strategic Forces Command has the operational responsibility to handle India's Nuclear arsenal.
- The agenda for the new Chief of Defense Staff (CDS) role is aimed at re-organisation India's existing single-service commands into only five joint commands with a focus on enhanced operational efficiency.
- The model proposed in the study is expected to be implemented in 2022, with no liabilities towards the creation of additional posts or ranks i.e. an Organisation structure to be culled out from the existing Command Structures of each of the services.
- Since the Indian Navy is the smaller than the other two services (Indian Army & Indian Air Force), it shall be first seeing the implementation of MTC, though now with larger assets under its belt.
- Earlier this year the CDS had announced his plans of merging the Western and Eastern Command and it was then called `Peninsular Command', however, since then the name has been changed to the Maritime Theatre Command.
- The other two tri-services theatre commands, are also planned to be created in the next two years.
- The Commander-in-Chief (CINC) of MTC is to report to the Joint Chiefs of Staff Committee headed by the CDS.
- Now, the role of Navy Chief when the operational role has been re-aligned shall mainly be focused on 'Raise, Train and Sustain' the Naval assets.
- The Command Headquarter of MTC is planned to be at Karwar.
- This incidentally too was the earlier aim of Navy so as to decongest Mumbai harbour in the Western Naval Command (WNC) and evolve Karwar as the main WNC base.

- It is expected that staffing of the HQ personnel shall gradually be enhanced to meet the tri-services components to handle work in an efficient manner to achieve an operational Command and Control.

Will the implementation process of MTC be easy?

- No. The implementation of MTC surely shall not be a smooth sailing due to various reasons inherent in every military organisation world over.
- It is not a mere exercise of re-naming and re-designation of Roles and Responsibilities but the creation of a functional matrix targeted at achieving the highest military proficiency.
- The traditional Command structure had evolved from the warfare tactics of the past and was a time tested approach.
- Therefore, the re-structure process of Indian Armed forces has to be implemented very carefully since we have ongoing border hostility with China and Pakistan.
- Various vagaries of inter-services rivalries and lack of resources should be well addressed, at all times respecting the expertise of each of the service arms.
- But additionally, the technological framework for seamless flow of combat information exchange amongst the three service components under MTC shall be the essential factor to achieve the desired operational efficiency.
- Indian Navy is well placed to undertake these responsibilities due to being already technologically advance and possessing its own three-dimensional arms viz, aircraft, warships and submarines.

More about Theaterisation?

- There will be specific units of personnel from the three services — the Indian Army, Navy and Air Force. All will be under a common theatre commander. And, they will all fight as a cohesive unit, just like in the US and China.
- This Theaterisation aims at compiling all the resources of land forces, naval units and aviation assets under a single theatre commander for efficient availability of resources to meet the military objectives in today's hi-tech warfare.
- The restructuring shall have Northern, Eastern and Western theatre commands to directly address the hostile China and Pakistan.
- The Indian Army possess highly motivated manpower which holds a rich combat experience and operational expertise to operate in diverse terrains as per the varied geography at the border's to be protected.

1.16.Over 75% Districts are Hotspots Of Extreme Weather Events

- Context: Over 75 per cent districts in India are hotspots of extreme climate events such as cyclones, floods, droughts, heat and cold waves, according to a study released by the Council on Energy, Environment and Water (CEEW).
  - ✓ This is the first time that extreme weather event hotspots in the country have been mapped.
  - ✓ The frequency, intensity, and unpredictability of these extreme events have risen in recent decades – while India witnessed 250 extreme climate events in 35 years between 1970 and 2005, it recorded 310 such weather events in only 15 years since then, the study has pointed out.

- ✓ The CEEW study found that in the last 50 years, the frequency of flood events increased almost eight times.
- ✓ Events associated with floods such as landslides, heavy rainfall, hailstorms, thunderstorms, and cloudbursts increased by over 20 times.
- ✓ The frequency of floods surged significantly in the last two decades, it was found.

- Between 1970 and 2004, three extreme flood events occurred per year on an average, but after 2005, the yearly average rose to 11.
- The annual average for districts affected until 2005 was 19, but after 2005, on average 55 districts were affected by floods each year.
- In 2019, India witnessed 16 extreme flood events, which affected 151 districts. The study found that over 9.7 crore people are currently exposed to extreme floods in India
- Six of India's eight most flood-prone districts in the last decade—Barpeta, Darrang, Dhemaji, Goalpara, Golaghat, Sivasagar—are in Assam.
- The current trend of catastrophic climate events results from a mere 0.6 degrees Celsius temperature rise in the last 100 years. India is already the fifth most vulnerable country globally in terms of extreme climate events, and it is all set to become the world's flood capital.
- The CEEW analysis indicates that while the number of rainy days during monsoon have decreased, single-day extreme rainfall events are increasing, leading to flooding.
- Until 2005, the number of districts affected by drought was six, but after 2005 this figure rose to 79.

Microclimatic zones shifting

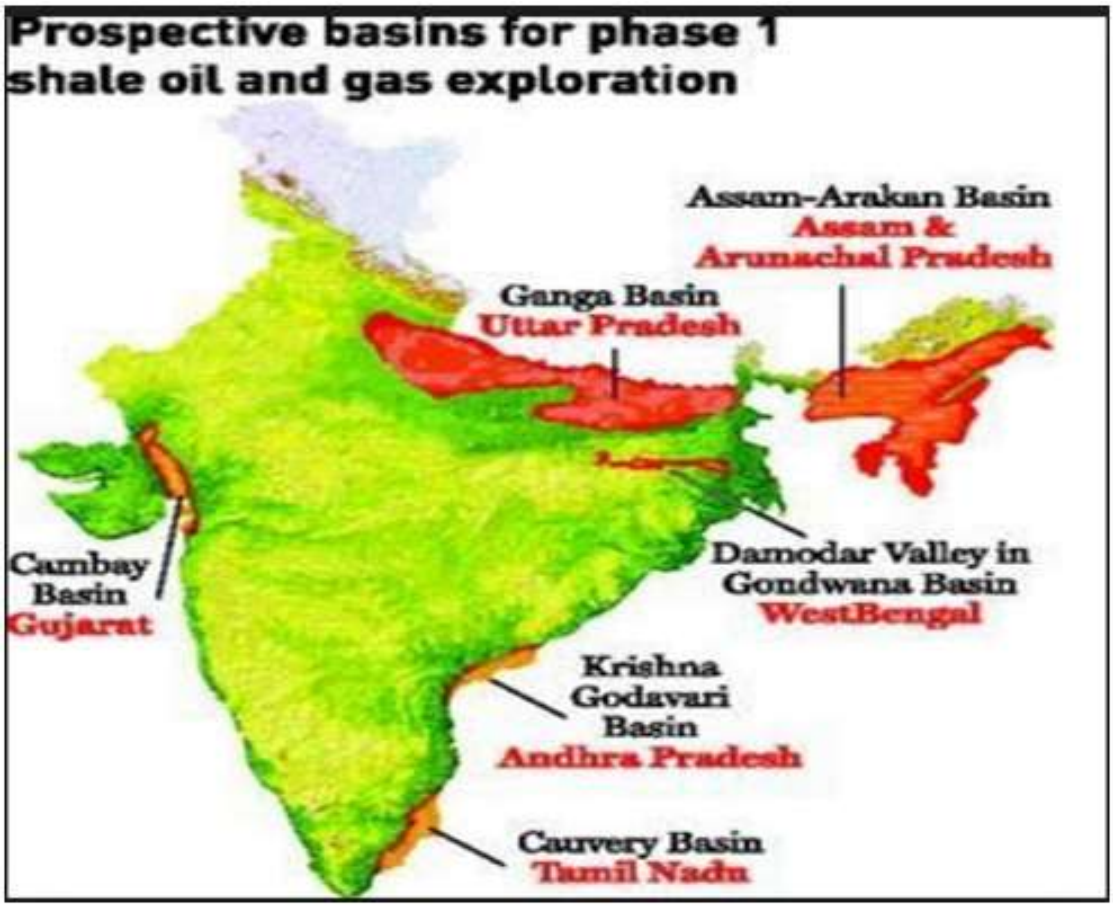
- Microclimatic zones, or areas where the weather is different from surrounding areas, are shifting across various districts.
- A shift in microclimate zones may lead to severe disruptions across sectors – every 2 degrees C rise in annual mean temperature will reduce agricultural productivity by 15-20%.
- Some reasons identified behind this shift in microclimatic zones is change in land-use patterns, disappearing wetlands and natural ecosystems by encroachment, and urban heat islands that traps heat.
- The study also found a shift in the pattern of extreme climate events, such as flood-prone areas becoming drought-prone and vice-versa, in over 40 per cent of Indian districts.

1.17.First Gas from Asia's Deepest Project

- Context: Reliance Industries Limited (RIL) and BP announced the start of production from the R Cluster, ultra-deep-water gas field in KG-D6 block off the east coast of India.
- RIL and BP are developing three deep-water gas projects in KG-D6 block – R Cluster, Satellites Cluster and MJ – which together are expected to meet 15% of India's gas demand by 2023.
- RIL is the operator of KG-D6 block with a 66.67% participating interest and BP holds a 33.33% participating interest.
- R Cluster is the first of the three projects to come on stream.

- The field is located about 60 kilometers from the existing KG D6 Control & Riser Platform (CRP) off the Kakinada coast and comprises a subsea production system tied back to CRP via a subsea pipeline.
- Located at a water depth of greater than 2000 meters, it is the deepest offshore gas field in Asia.

What is KG D6 basin?



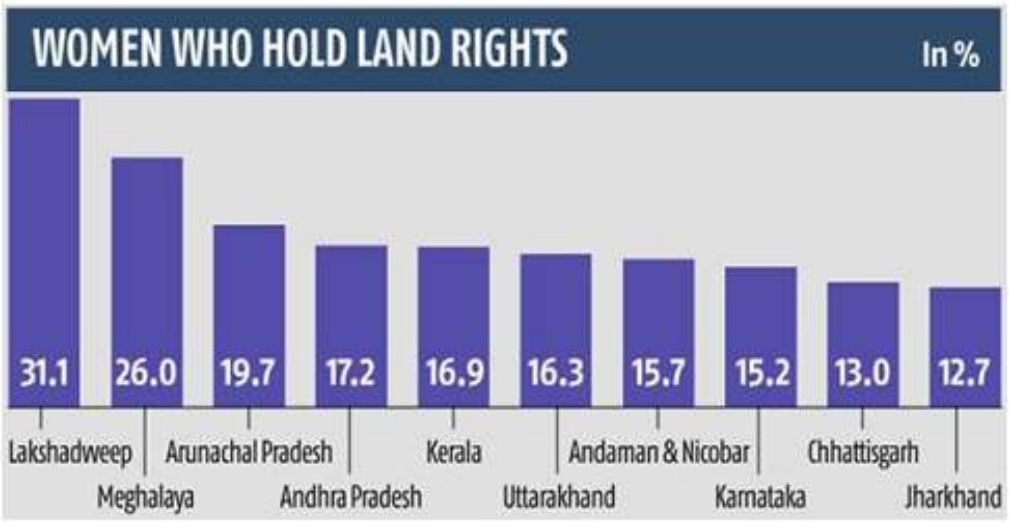
- Krishna Godavari (KG) Basin is spread across 50,000 sq km in the Krishna River and Godavari river basins near the coast of Andhra Pradesh.
- The site Dhirubhai-6 (D6) is where Reliance Industries discovered the biggest gas reserves in India.
- In government records, the 7,645 sq km block is known as KG-DWN-98/1.
- The KG basin is considered to be the largest natural gas basin in India.

How did Reliance Industries get into KG basin?

- Government of India opened up hydrocarbon exploration and production (E&P) in the country to private and foreign players in 1991.
- Small and medium sized blocks were opened up in this round which was followed up by giving out bigger blocks in 1999 as per the New Exploration and Licensing Policy (NELP).
- Through NELP, Reliance bagged the rights to explore the D6 block.

1.18.The Landless women

- Lakshadweep and Meghalaya are the best among all the 35 states and Union Territories at providing land rights to women.



- Punjab and West Bengal are the worst, according to an index created by the Bhubaneswar-based Centre for Land Governance, an arm of consultancy firm NR Management Consultants.
- The index was prepared using the data on women's operational holdings from the agriculture census of 2011, the share of adult women owning farm land from the Indian Human Development Survey of 2011-12, the share of women-headed households owning land from the Socio-economic Caste Census of 2011, and the share of women owning house and/or land (alone or jointly) from the National Family Health Survey of 2015-16.
- The index ranks states in terms of women holding land rights in percentage points.
- On average, 12.9% of Indian women hold land.
- In the southern states, 15.4% of women hold land, and in the northeast, 14.1%.
- Despite such low figures, these states outperform the northern states (9.8%), and the eastern states (9.2%).
- Secure and impartial land rights for women are crucial for a country to achieve sustainable developments goals, such as ending poverty and achieving gender equality.
- The government had professed an intention to give joint titles to men and women while distributing land and home sites since the Sixth Five Year Plan (1980-85).
- But, the data shows a poor record.
- Women constitute a third (32%) of India's agricultural labour force and contribute 55-66% to farm production, according to the Food and Agriculture Organization.
- Yet, they hold only 12.8% of operational holdings in India, according to the Center for Land Governance index.

1.19.Haldibari - Chilahati railway line

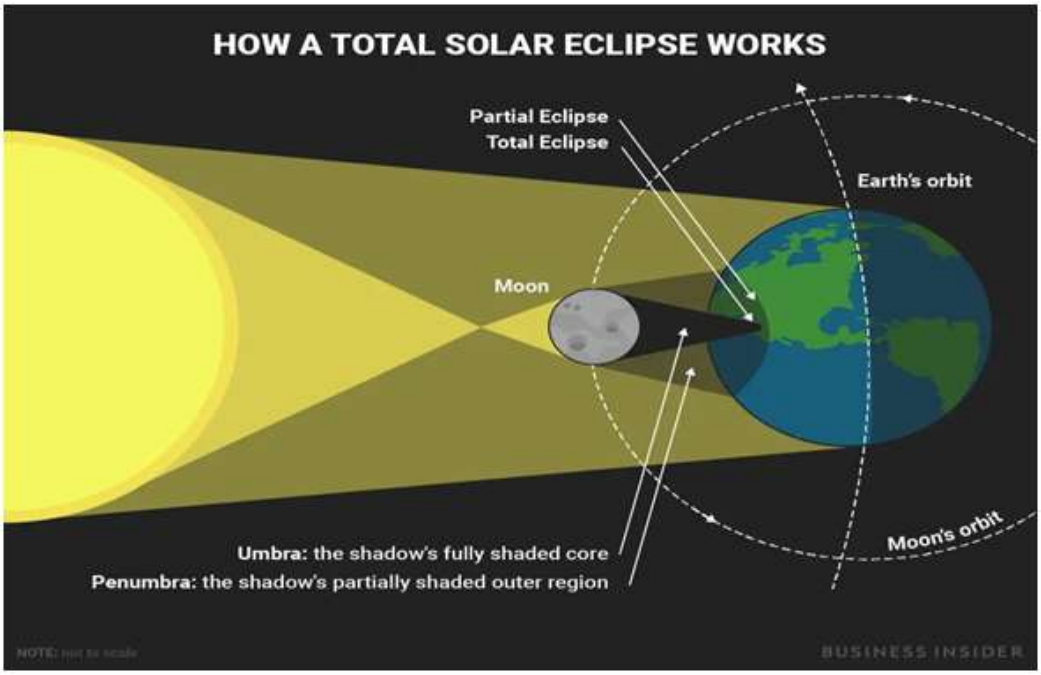
- Context: A railway link has been inaugurated recently between Haldibari and Chilahati.
- According to Indian Railways' NFR zone, after partition in the year 1947, seven rail links were operational between India and the then East Pakistan up to the year 1965.

- At present, there are four rail links that are operational between India and Bangladesh
  - ✓ Petrapole – Benapole
  - ✓ Gede – Darshana
  - ✓ Singhabad –Rohanpur
  - ✓ Radhikapur – Birol.
- The newly inaugurated Haldibari – Chilahati rail link is the fifth rail link between the two countries.
- This rail link was part of the Broad-Gauge main route from Kolkata to Siliguri during partition was operational till 1965.
- Even after partition, trains traveling to the northeastern state of Assam and North Bengal continued to travel through the then East Pakistan territory.
- However, during the war in 1965, the railway links between India and the then East Pakistan was effectively cut off.
- In pursuance of the joint declaration in the IGRM, which was held in Delhi in May 2015, the Railway Board sanctioned for construction of a new Broad-Gauge line from Haldibari railway station to Bangladesh Border for connection with Chilahati, covering a length of 3.50 km in 2016-17, to reopen this rail link.
- The national transporter, at a cost of Rs 82.72 crores, has restored the railway tracks up to the international border from Haldibari railway station.
- Accordingly, upgradation works and laying of missing tracks were undertaken by Bangladesh Railways on their side from Chilahati railway station to the international border.
- On the Bangladesh side, the existing line connecting Chilahati – Parbatipur – Santahar – Darshana is already in broad gauge.
- The newly opened railway route between Haldibari and Chilahati will be beneficial for transit into the neighbouring country, Bangladesh from the states of West Bengal and Assam.
- This rail link will enhance the accessibility of the railway network to the dry ports, main ports, and land borders to support the growth in regional trade as well as to encourage the region's economic and social development.
- Once passenger trains are planned in this route, the public of both countries will be able to reap the benefit of both passenger and goods traffic.
- Also, with this line, tourists from Bangladesh will be able to easily visit places such as Sikkim, Darjeeling, Dooars other than countries like Bhutan, Nepal, etc.
- This new rail link will also benefit the economic activities of these South Asian countries.

1.20.Solar Eclipse

- Context: Earth witnessed its last solar eclipse of the year on December 14. The total solar eclipse was not visible from India.

- However, the total solar eclipse was visible for people living in parts of Chile and Argentina in South America.
- In southern parts of South America, South-West Africa and Antarctica, people witnessed a partial solar eclipse.
- The total solar eclipse occurs when the moon completely blocks the sun.
- The celestial event lasted for a total of two minutes and 10 seconds.

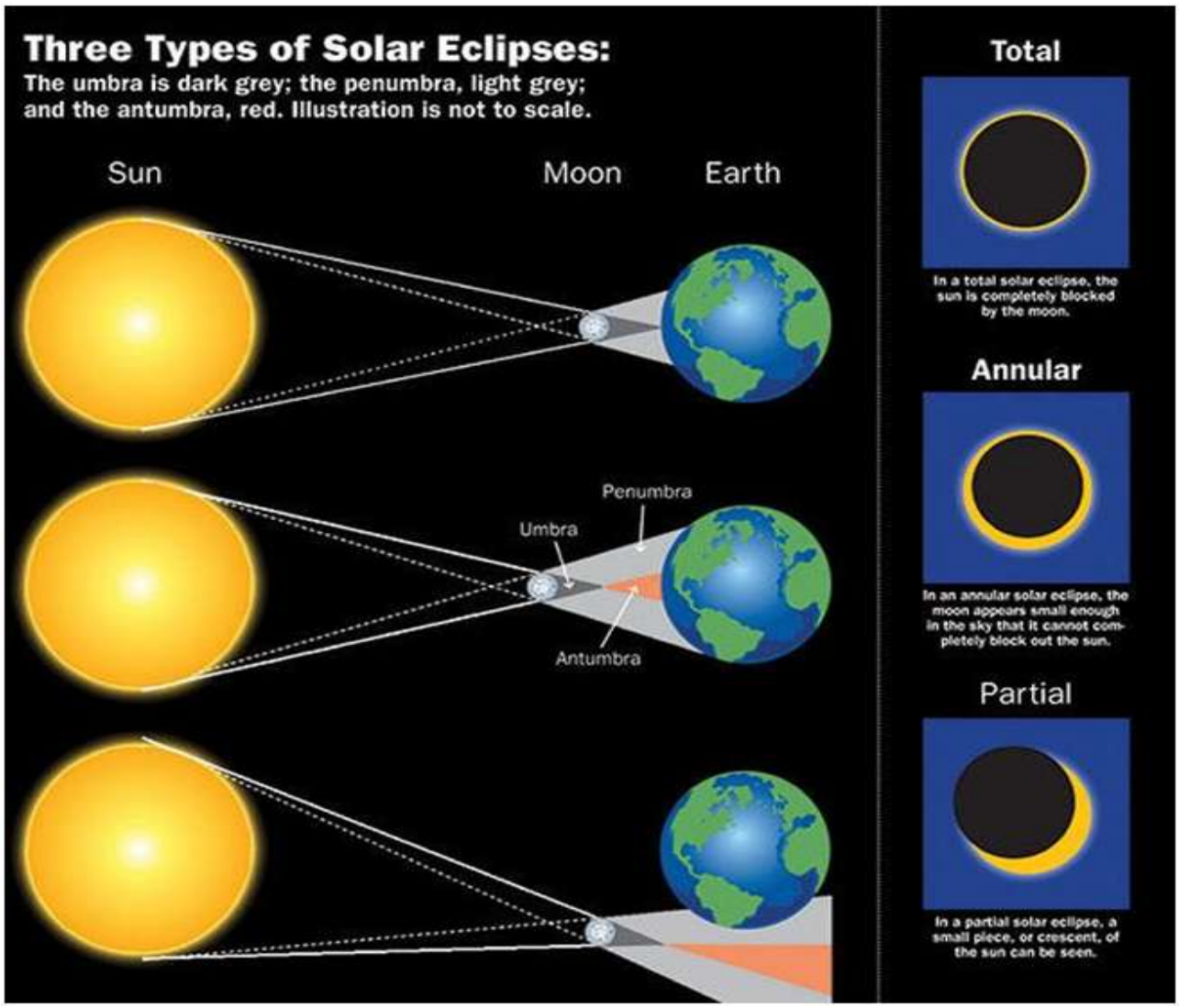


What is Annular Solar Eclipse?

- An eclipse happens when the moon while orbiting the Earth comes in between the sun and the Earth, due to which the moon blocks the sun's light from reaching the Earth, causing an eclipse of the sun or a solar eclipse.
- There are three types of eclipses: one is a total solar eclipse, which is visible only from a small area on Earth.
- According to NASA, people who are able to view the total solar eclipse are in the centre of the moon's shadow as and when it hits the Earth.
- A total solar eclipse happens when the sun, moon and Earth are in a direct line.
- The second type of a solar eclipse is a partial solar, in which the shadow of the moon appears on a small part of the sun.
- The third kind is an annular solar eclipse, which happens when the moon is farthest from the Earth, which is why it seems smaller.
- In this type of an eclipse, the moon does not block the sun completely, but looks like a "dark disk on top of a larger sun-colored disk" forming a "ring of fire".

1.21.Geminids Meteor Shower

- Context: The Geminids meteor shower, believed to be the strongest of the year, was active from December 4-December 20, with December 13 and 14 considered to be the best nights for viewing these meteor showers.
- Soon after the Geminids meteor shower, viewers in the northern hemisphere can expect to see the Ursids meteor shower, which will be active from December 17-December 26 and will peak right before Christmas on the night of December 21-December 22.

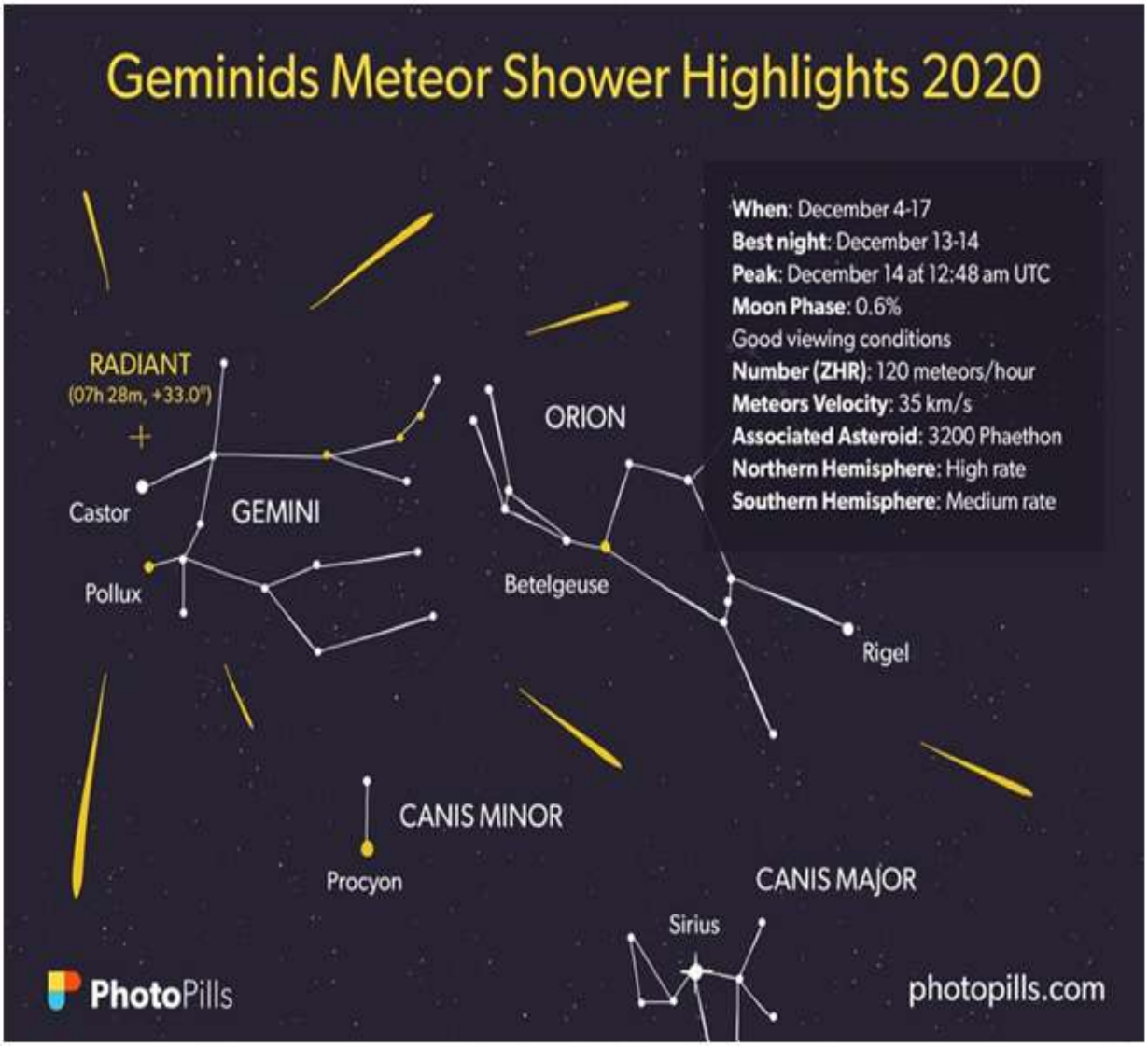


What are meteor showers?

- Meteors are bits of rock and ice that are ejected from comets as they manoeuvre around their orbits around the sun.
- For instance, the Orionids meteors emerge from the comet 1P/Halley and make their yearly presence in October.
- Meteor showers are witnessed when Earth passes through the trail of debris left behind by a comet or an asteroid.
- When a meteor reaches the Earth, it is called a meteorite and a series of meteorites, when encountered at once, is termed a meteor shower.
- According to NASA, over 30 meteor showers occur annually and are observable from the Earth.
- As meteors fall towards the Earth, the resistance makes the space rocks extremely hot and, as meteorites pass through the atmosphere, they leave behind streaks of glowing gas that are visible to the observers and not the rock itself.

Why is the Geminid meteor shower considered to be the best of the year?

- The Geminids meteor showers are unique because their origin does not lie in a comet, but what is believed to be an asteroid or an extinct comet.



- The Geminids emerge from 3200 Phaethon, which meteor scientists consider to be an asteroid.
- Discovered on October 11, 1983, the asteroid is over 5 km in diameter and was named after the Greek myth of Phaethon, the son of Sun god Helios.
- According to NASA, the Geminids rate will be better this year because the shower's peak overlaps with a nearly new moon, which means there will be darker skies and no moonlight to wash out the fainter meteors.
- While the meteors peaked on the night of December 13 to the dawn of December 14, some meteor activity may still be visible in the days before and after this peak.
- NASA says that Geminids travel at a speed of 78,000 mph or 35 km/s, which is over 1000 times faster than a cheetah, about 250 times faster than the swiftest car in the world and about 40 times faster than a speeding bullet.
- Meteors are best visible on a cloudless night and when the Moon is not extremely bright.
- Chances of a successful viewing are higher from locations far away from the lights of cities.
- Generally, pollution makes viewing meteor showers from India difficult to view.

2. History & Culture

Click on the links given below to watch the following questions on YouTube

- Video 1
- Video 2
- Video 3
- Video 4

2.1.Lachit Diwas

- Context: PM paid tribute to Lachit Borphukan on Lachit Diwas.
- Lachit Barphukan, was the great Ahom general who inflicted humiliating defeat on the mighty Mughal army in the Battle of Saraighat in 1671, bringing the curtain down on the last major attempt by the Mughals to take Assam.
- The right-angled triangle of the Brahmaputra (Itakhuli-Kamakhya-Aswakranta) became a complicated tangle of boats and men battling to save themselves from drowning.

- The Assamese spanned the Brahmaputra by an improvised bridge of boats placed side by side.
- They also resorted to a wily trick, combining a frontal charge with a surprise attack from behind, that proved decisive.
- The Barphukan pretended to attack the Moghul fleet from the front with some men on a few ships and lure it forward and then stabbed it from behind with the main army and fleet.
- The Moguls advanced forward only to be killed by a gunshot from behind.
- The suddenness of the event threw the entire Moghul fleet out of gear and it retreated.
- The panic-stricken Moghul army could not be recalled to order.
- His death marked the end of the battle.For the Moghuls, who suffered heavy casualties, with three top-ranking amirs and 4,000 dead and wounded, it was not merely a defeat but a disaster.

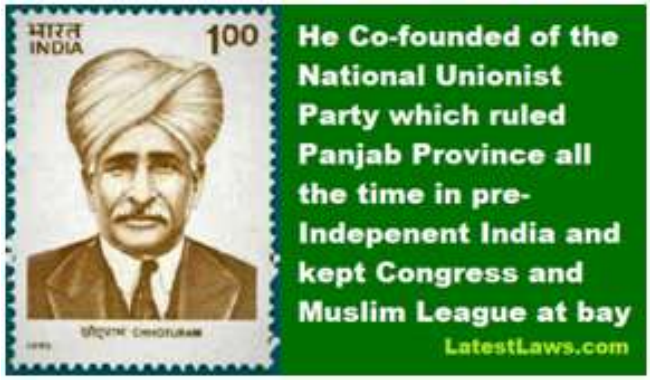
The Tribute

- The Barphukan's victory is recorded in a stone inscription in Guwahati.
- The best cadet officer of every batch graduating from the National Defence Academy gets the Lachit Barphukan Gold Medal.
- A bust of the Barphukan stands at the entrance to the NDA.

The Hurt

- The Assamese remain upset that Lachit Barphukan, the Hero of Saraighat, has never received the kind of national recognition that other symbols of resistance to Mughal imperial domination, such as Chhattrapati Shivaji and Maharana Pratap, have.
- Following repeated demands, however, NCERT has recently included a chapter on him in the CBSE curriculum.

2.2.PM Pays Tribute to Sir Chotu Ram Ji on His Birth Anniversar



- Chaudhary Chhotu Ram was born in village Sampla in Jhajjar district of Haryana on 24 November 1881 a one-horse town far away from the capital of Punjab, Lahore.
- Punjab Province at the time extended from Rawalpindi in the north of India to the borders of Rajasthan, a distance of over 500 miles.
- He passed the intermediate examination in 1903 from the Christian Mission School in Delhi. The same year he joined St Stephen's College, graduating in 1905.
- He chose Sanskrit as one of his subjects. He obtained his LLB degree from Agra College in 1910, becoming an advocate in 1912, the year Jawaharlal Nehru returned to India after spending seven years in England.
- He joined the Congress party in 1916.

- He was president of the Rohtak District Congress Committee till 1920.
- In 1915 he launched his newspaper, Jat Gazette.
- Between 1937 and January 1945, Sir Chhotu Ram changed the face of rural Punjab, by enacting revolutionary reforms.
- As a member of the pre-Partition Punjab Legislative Council, his first major achievement was the passage of the Punjab Land Revenue (Amendment) Act, 1929, which remains a landmark social legislation till date.
- The exploitation of the peasantry by moneylenders was brought to an end with a series of measures, starting with the Punjab Regulation of Accounts Act, 1930.
- It was followed by the Punjab Debtors Protection Act of 1936 and the Punjab Relief of Indebtedness Act, 1943.
- It became mandatory for moneylenders to register themselves, without which they could not advance loans or prosecute farmers.
- All land attached and sold after June 8, 1901, and mortgaged for 37 years, was restored to its owners. Farmers were required only to give an application on plain paper to the district collector.
- If any moneylender had recovered twice the loan amount, the farmer was given his land back.
- Reconciliation boards were set up; confiscation of milch cattle, oxen, camels and carts or means of earning was barred.
- The Punjab Agricultural Produce Markets Act was passed in 1939, popularly called the Mandi Act which provided for the constitution of market committees in notified areas, and helped free the farmer from exploitation.
- A consolidation of land holdings was undertaken after passing the Consolidations Holding Act, 1936, amended in 1945.
- Not only were all these laws passed, Chhotu Ram also ensured their implementation.
- He was awarded the title of 'Rao Bahadur' and was accorded knighthood in 1937.
- He popularly came to be known as DeenBandhu.
- The Muslim Jats called him Rehbar-i-Azam—a protector of the poor.
- Chaudhary Chhotu Ram left the Congress because he came to the conclusion that Mahatma Gandhi's non-co-operation movement neglected the farmers.
- Along with Sir Fazle-Hussein and Sir Sikandar Hayat Khan, he launched the Zamindaran Party, which later became the Unionist Party, which had the support of Hindu and Muslim Jats, Sikh Jats and a vast majority of zamindars of all communities.
- In the 1937 provincial elections in Punjab, out of 175 seats, the Unionist Party won 99 seats, the Congress and the Muslim League between them managed 19, the Khalsa Nationalists 13 and the Hindu Mahasabha 12.
- The new ministry was sworn in on 1.4.1937, with Sir Sikandar Hayat Khan as Premier, Chhotu Ram was appointed Revenue Minister.

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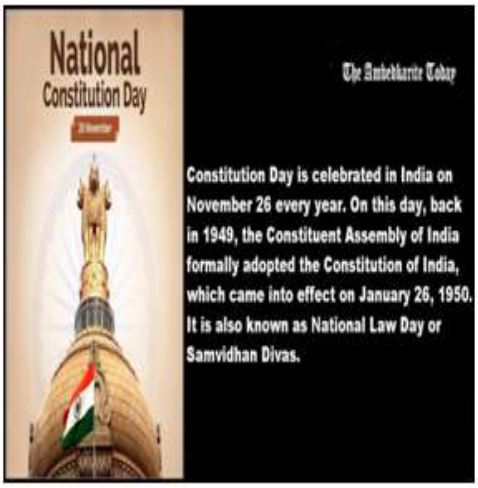
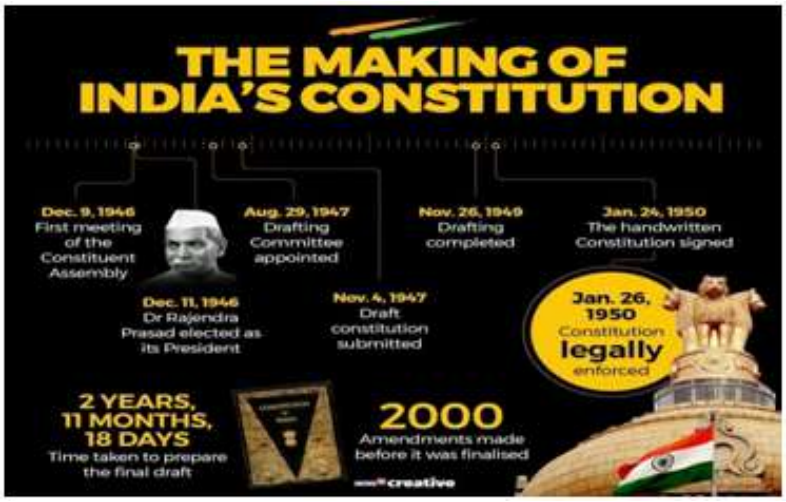
- He held the post till his death on 9 January 1945, aged 63.
- It was Chhotu Ram who conceived the idea of building the Bhakra Dam.
- He had the Punjab government sign an agreement with the Raja of Bilaspur, who had the right to the waters of the river Sutlej. The agreement was signed a few months before he died.
- M.A. Jinnah asked Premier Khizer Hayat to alter the name of the Unionist Government of the Punjab to the Muslim League Government. This was vigorously opposed by Sir Chhotu Ram. He had his way.
- The two Hayats, Chhotu Ram and other leaders of the Unionist Party ensured that the party remained secular and no community took precedence over the others.
- A commutative stamp was issued on 9 January 1995 to honour his memory.

2.3.Constitution day





2.4.Lingayats

- Context: The Karnataka government has set in motion the process to set up the Karnataka Veerashaiva-Lingayat Corporation (KVLC) with a fund of Rs 500 crore

Who are the Lingayats?

- The Lingayat sect is believed to have stemmed from the principles of the 12th century social reformer and Kannada poet Basava.
- Many scholars believe he furthered an established sect.
- Inspired by the 'Bhakti' movement, Basava rejected temple worship and Brahmin rituals and envisaged a religion free of gender and religious discrimination.
- Several people from backward castes opted to be Lingayats over the centuries to escape the rigid Hindu caste system.

Are Lingayats and Veerashaivas the same?

- No.
- While both Veerashaivas and Lingayats pray to the Hindu god Shiva, the two sects are not synonymous

- Like the Brahmins believe they were born from the ear of Brahma, the Veerashaivas believe themselves to be born of Shiva's lingam or phallus.
- The major difference between the Lingayats and the Veerashaivas is that while the former reject the Vedas and the caste system, the latter don't.
- The Lingayats worship Shiva as a formless entity (ishtalinga), while Veerashaivas worship the Vedic idol of Shiva with a snake around his neck.
- These are the reasons why, since the framing of the Constitution, the Lingayats have been seeking recognition as a religion independent of Hinduism.

Why the confusion?

- The 12-century vachanas or sayings of Basava were lost or dispersed among different southern states, following which many texts clubbed Veerashaivas and Lingayats under one umbrella.
- It is only recent research that has helped differentiate Veerashaivas, Lingayats, and Hindus.

2.5.Guru Nanak Dev Ji

- Guru Nanak Ji, the founder of Sikhism and the first of the ten Sikh Gurus died 476 years ago on September 22, 1539 at the age of 70.
- He was known for his political, social and spiritual beliefs which were based on love, equality, fraternity and virtue.
- He travelled to far off places and he spread the message of 'one God', that God constitutes the eternal truth and he resides in his creations.

Background

- He was born on April 15, 1469. His birth anniversary is celebrated on Kartik Puranmashi, the full moon day in the month of October or November
- He was born to Hindu parents though he believed that he was neither Hindu nor Muslim
- He started going to school at the age of seven.
- It was believed that he surprised his teacher by explaining him the symbolism of the first letter of the alphabet, which is a straight stroke in Persian or Arabic. It resembled the mathematical one and it symbolized as God being one and united
- At the age of 18, Guru Nanak married Mata Sulakkhani on September 24, 1487. He had two sons, Sri Chand and Lakshmi Chand
- Guru Nanak's son Sri Chand became the founder of Udasi religion

- At the age of 30, Guru Nanak had a vision. One day Guru Nanak failed to return from his bath and his clothes were found on the bank of the stream. The locals thought that he died. After three days he returned back and he stayed silent. Later he said that he had been taken to God's court and there he was offered a cup full of amrit and he was blessed.
- Guru Nanak said, "There is neither Hindu nor Muslim so whose path shall I follow? I shall follow God's path. God is neither Hindu nor Muslim and the path which I follow is God's."
- Guru Nanak founded the Sikh sacred scripture, Guru Granth Sahib
- His teaching majorly involved three things; 'Vand Chakko', 'Kirat Karo' and 'Naam Japna'.
    - ✓ Vand Chakko involves sharing with others and helping the ones in need.
    - ✓ Kirat Karo involves making a living honestly with exploiting anyone and without any fraud;
    - ✓ And 'Naam Japna' involves meditating on the name of God and controlling our evils.

- Guru Nanak travelled the World with an objective to spread the holy message. He travelled to Mecca, Tibet, Kashmir, Bengal, Manipur, Rome etc. on foot with his Muslim companion (and friend) Bhai Mardana
- Guru Nanak died at the age of 70. He appointed Bhai Lena as his successor and renamed him as Guru Angad.

2.6.Annapurna Statue to come back to India

- Context: The statuette of Goddess Annapurna, which was stolen over a century ago and transported to Canada, will soon be making its way back to India, to its original home in Varanasi.
- It is believed that this 18th century idol was acquired by lawyer Norman McKenzie in the early 20th century.
- After it was stolen, the statue became part of MacKenzie Art Gallery at the University of Regina in Canada.
- The idol is expected to be returned by mid-December.
- After its arrival, verification and documentation will be done, following which it will be decided where it will be placed in Varanasi.
- The announcement regarding the bringing back of the idol was made by Prime Minister during Dev Deepawali Mahotsav in Varanasi.
- Prior to this, interim president and vice-chancellor of the University of Regina, had handed over the statue to India's high commissioner to Ottawa, in a virtual repatriation ceremony.
- Annapurna, also called 'Annapoorna' is known as the goddess of food and nourishment.
- She is also known as the manifestation of the goddess Parvati, partner to Lord Shiva.
- The 18-century idol built following the Benaras style of art had so long been an exhibit at the MacKenzie Art Gallery, an art museum in Canada that showcases the private collection of the Regina University.

Other repatriated objects from the West

- Union Culture Minister recently handed over the custody of a bronze idol of Lord Rama, Lakshman and Goddess Sita to the Tamil Nadu government after bringing it back firm the UK.
- He has also put the onus of their safe custody to the respective state's government to avoid any future situation of theft.
- In the last six years, the government was able to trace back 40 antiquities from various countries that were stolen in between 1977 and 2014.
- According to ASI records, 13 of them were brought back to India.

Legal Provisions in India

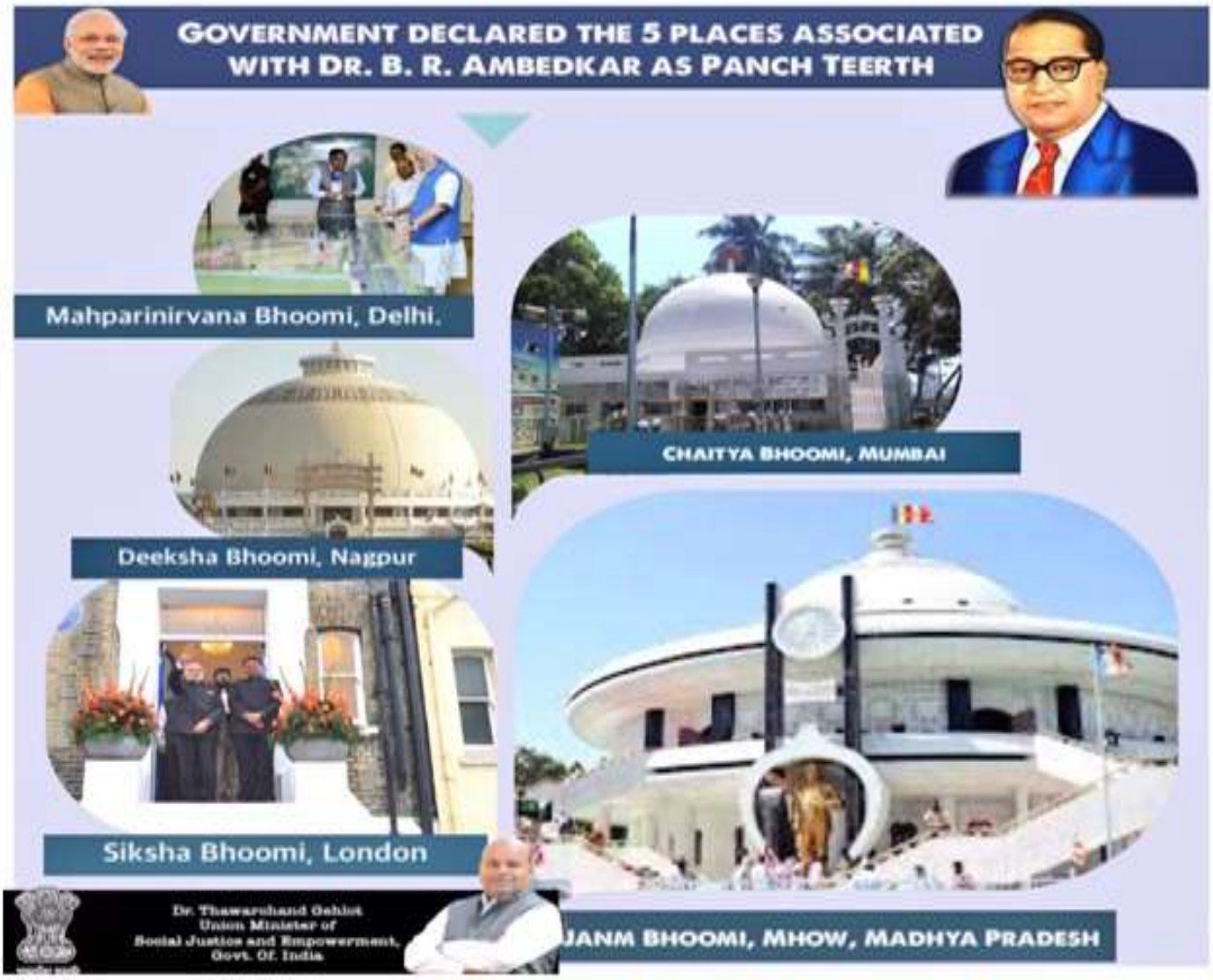
- Antiquities And Art Treasures Act 1972.
- Indian Treasure Trove Act 1949.

- National Mission on Monuments and Antiquities– it creates a National Register on Artifacts that are unprotected.
- National Manuscript Mission for Documenting Heritage.
- Bilateral agreements to recover smuggled artifacts.

2.7.Mahaparinirvana Diwas

- Context: December 6, 2020, marks the 64th death anniversary of DrBhimrao Ramji Ambedkar, the chief architect of the Indian Constitution. BR Ambedkar breathed his last on December 6, 1956, in his sleep and people pay their tributes to him on this day every year which is observed as the Mahaparinirvana Diwas.
- Parinirvana, regarded as one of the major principles as well as goals of Buddhism, is a Sanskrit term which means release or freedom after death.
- As per the Buddhist text Mahaparinibbana Sutta, the death of Lord Buddha at the age of 80 is considered as the original Mahaparinirvana.
- Owing to his status as a Buddhist leader, Ambedkar's death anniversary is referred to as Mahaparinirvana Diwas.
- Ambedkar, who belonged to the Mahar caste which was considered untouchable in Hinduism, converted to Buddhism after studying the religion for years on October 14, 1956, in Nagpur along with 500,000 supporters.
- He died just a few days after completing his last work, The Buddha and His Dhamma, a treatise on Buddha's life and Buddhism.
- Ambedkar believed that Dalits can never get their rights within Hinduism.
- Baba Saheb, as he is fondly called by his supporters, was born on April 14, 1891, in Madhya Pradesh's Mhow.
- Because of his caste, Ambedkar witnessed economic and social discrimination since childhood.
- In 1912, Bhimrao graduated in political science and economics from Bombay University after which he got a job in Baroda but decided to move to the United States in 1913 for further studies.
- In 1916, he received a doctorate degree from Columbia University, becoming the first Indian to do so.
- According to Ambedkar, Columbia University was the first place where he "experienced social equality."
- When he returned from the United States, the Maharaja of Baroda appointed Ambedkar as his political secretary.
- Bhimrao moved to Bombay in 1917 and established a fortnightly newspaper "Mooknayak" in 1920 which laid the foundations of an assertive and organised Dalit politics.
- Ambedkar was appointed by the Bombay Presidency Committee to work in the Simon Commission in 1925.
- In 1926, Ambedkar successfully defended three non-Brahmin leaders who had accused the Brahmin community of ruining India and were then subsequently sued for libel.

- This made Ambedkar popular in the country after which he led the Mahad Satyagraha in 1927 to allow untouchables to use water in a public tank in Mahad, Maharashtra.
- The Kalaram Temple Movement of 1930 formed a pivotal role in the Dalit movement in India in which Ambedkar led a protest outside the Kalaram temple which did not allow Dalits to enter the temple premises.
- In 1932, Ambedkar was invited to attend the Second Round Table Conference in London where he demanded separate electorates for Dalits.
- Mahatma Gandhi was against separate electorates for untouchables and protested by fasting in Yerwada jail.
- Ultimately, Ambedkar agreed with Gandhi and signed the Poona Pact, whereby a number of seats were reserved for the untouchables, which gave the Dalits a place in the general electoral list.
- On August 29, 1947, he was appointed as the chairman of the Constitution Drafting Committee for the constitution of independent India. After Independence, he was appointed as the law minister of India.



2.8.Cattle, buffalo meat residue found in Indus Valley vessels

- A new study has found the presence of animal products, including cattle and buffalo meat, in ceramic vessels dating back about 4,600 years at seven Indus Valley Civilization sites in present-day Haryana and Uttar Pradesh.
- The studywas conducted as a part of the Two Rains project of the University of Cambridge and Banaras Hindu University, analyzed the lipid residue in pottery found at the ancient sites.
- About 50-60% of domestic animal bones found at Indus Valley sites come from cattle/buffalo.
- The high proportions of cattle bones may suggest a cultural preference for beef consumption across Indus populations, supplemented by the consumption of mutton/lamb.
- The study of lipid residues in Indus pottery shows a dominance of animal products in vessels, such as the meat of non-ruminant animals like pigs, ruminant animals like cattle or buffalo and sheep or goat, as well as dairy products.
- The analysis of lipid residues involved extraction and identification of the fats and oils that were absorbed in the vessels.
- The study was the first to look into the absorbed lipid residues in pottery from multiple sites, including Rakhigarhi, Farmana and Masudpur.
- While cattle bones have been found in large numbers at Indus Valley sites, the study found little evidence of dairy products.
- However, there could be regional differences as a recent study of vessels in Gujarat had found evidence of dairy products.

2.9.Tharu Tribals

- Context: The Uttar Pradesh government has recently embarked upon a scheme to take the unique culture of its ethnic Tharu tribe across the world. The intention is to put Tharu villages on the tourism map, and to create jobs and bring economic independence to the tribal population.

What is this scheme about?

- The state government is working to connect Tharu villages in the districts of Balrampur, Bahraich, Lakhimpur and Pilibhit bordering Nepal, with the home-stay scheme of the U.P. Forest Department.
- The idea is to offer tourists an experience of living in the natural Tharu habitat, in traditional huts made of grass collected mainly from the forests.
- The Uttar Pradesh Forest Corporation will train the Tharu people to communicate effectively with visitors and encourage villagers to acquaint them with aspects of safety and cleanliness, and with the rules of the forest.
- Tharu homeowners will be able to charge tourists directly for the accommodation and home-cooked meals.
- The UP government expects both domestic and international tourists to avail of the opportunity to obtain a taste of the special Tharu culture by staying with them, observing their lifestyle, food habits, and attire.

- The Tharus live in both India and Nepal. In the Indian terai, they live mostly in Uttarakhand, Uttar Pradesh, and Bihar.

Who exactly are the Tharu people?

- The community belongs to the Terai lowlands, amid the Shivaliks or lower Himalayas.
- Most of them are forest dwellers, and some practice agriculture.
- The word tharu is believed to be derived from sthavir, meaning followers of Theravada Buddhism.
- Members of the tribe survive on wheat, corn and vegetables grown close to their homes.
- In the Indian terai, they live mostly in Uttarakhand, Uttar Pradesh, and Bihar.
- According to the 2011 census, the Scheduled Tribe population in Uttar Pradesh was more than 11 lakh; this number is estimated to have crossed 20 lakh now.

What is unusual about the Tharu language, food, and culture?

- They speak various dialects of Tharu, a language of the Indo-Aryan subgroup, and variants of Hindi, Urdu, and Awadhi
- In central Nepal, they speak a variant of Bhojpuri, while in eastern Nepal, they speak a variant of Maithili.
- Tharus worship Lord Shiva as Mahadev, and call their supreme being “Narayan”, who they believe is the provider of sunshine, rain, and harvests.
- Tharu women have stronger property rights than is allowed to women in mainstream North Indian Hindu custom.
- Most Tharutribals consume alcoholic beverages, and some eat beef.
- Standard items on the Tharu plate are bagiya or dhikri – which is a steamed dish of rice flour that is eaten with chutney or curry – and ghonghi, an edible snail that is cooked in a curry made of coriander, chili, garlic, and onion.

2.10.Hampi stone chariot now gets protective ring

- Context: The Vijaya Vittala Temple in the UNESCO World Heritage site of Hampi, has been cordoned off by a protective ring by the Archaeological Survey of India (ASI).
- ASI put up the barrier aimed at preventing people from touching or climbing the monument, causing damage in any way.
- The stone chariot is one of the most visited monuments in Hampi and needs extra protection.
- Every tourist visiting the site photographs the sensitive monument and touches it.
- Some even climb it to take their photos with the monument. The protected monument is facing the risk of being damaged by such objectionable behavior of some of the tourists.
- Tourists can, henceforth, see and photograph the monument from a distance.
- The Chariot is actually a shrine dedicated to Garuda, which you see inside the complex of Vijaya Vittala temple. There used to be a massive sculpture of Garuda seated atop the chariot but now, it is a

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ruin.

- The Stone Chariot of Hampi is recognized among the three famous chariots in India; One in Konark and another one in Mahabalipuram.

Hampi stone chariot

- The iconic chariot was built by the Great King of Vijayanagara, Shri Krishna Deva Raya during the 16th century.
- It is said in the history that the king got fascinated with the Konark Sun temple chariot while fighting a battle in Odissa and wanted one of that kind in his empire.
- There is an interesting talk among the locales that the world would come to a halt when the chariot moves from its space.
- Also, villagers believe that the idol inside the chariot was stolen by Britishers and it is still there, somewhere in Britain.
- The architecture is inspired by the Dravidian art and it is a pure colossal structure mirroring the skills of the early craftsmen and architects.
- One amazing fact about Stone chariot is its construction. It looks like one single piece of a solid structure. However, it was built by slabs of granite whose linkages are smartly hidden with artistic designs.
- The base of the chariot depicts the mythical battle scenes in its finest details.
- The chariot has elephants seated but you can clearly observe the hind legs and tails of the horses behind the elephants. A smaller ladder is observed in between the two elephants as a way to enter the inner sanctum of the shrine.
- Stone Chariot of Hampi is designated as one of India's most known archaeological destinations. Also, the Government of India printed the chariot in 50 Rupee Note.
- The chariot is located in the complex of Vijaya Vittala temple where one can see the stone musical pillars.

2.11.Gwalior, Orchha in UNESCO world heritage cities list: MP Govt

- Context: The historical fort cities of Gwalior and Orchha in Madhya Pradesh have been included in the list of UNESCO's world heritage cities under its urban landscape city programme, according to the state government.

- After getting included in the heritage city list, the face of Gwalior and Orchha will totally change and UNESCO along with the state tourism department will make a master plan for the beautification of the two places.
- A UNESCO team will visit the state next year and after having a look at the heritage properties will prepare a master plan for their development and conservation.
- Under the plan, UNESCO will suggest best measures and resources for the development of these places under the Historic Urban Landscape recommendations.
- Gwalior was established in 9th century and ruled by Gurjar-PratiharRajvansh, Tomar, and Scindias.
- Gwalior is known for its palaces and temples, including the intricately carved Sas Bahu Ka Mandir.
- The Gwalior Fort occupies a sandstone plateau overlooking the city and is accessed via a winding road lined with sacred Jain statues.
- Within the forts high walls is the 15th-century Gujari Mahal Palace, now an archaeological museum.

2.12.Centre recognises yoga as a competitive sport

- Context: Yogasana will be a competitive sport in the country, Ministries of AYUSH and Ministry of Youth Affairs and Sports have declared
- The National Board of Promotion and Development of Yoga and Naturopathy in 2019 had recommended that yogasana be recognised as a competitive sport.
- A document containing rules, regulations and syllabus for yogasana competitions had been prepared, and the technical committee had also made a list of the asanas (compulsory and optional) after research from traditional books on Yoga.

- Work for automation of the scoring system to introduce objectivity in marking has been initiated and district/ State/ national/ world championships in yogasana are proposed in 2021.
- A pilot championship of traditional yogasana by the name of 'National Individual Yogasana Sports Championship' (virtual mode) is proposed to be organized in February 2021.
- The work is currently on to develop a patented electronic scoring system for yogasana championships in India and globally, along with courses/ certification of coaches, referees, judges and directors for competitions, coaching camps for players, and broadcast-friendly packaging of the sports into leagues, shows and competitions.
- Yogasana as a sports discipline is likely to have 51 medals in four events and seven categories.
- The proposed events for both men and women include 'Traditional Yogasana', 'Artistic Yogasana (Single)', 'Artistic Yogasana (Pair)', 'Rhythmic Yogasana (Pair)', 'Free Flow/Group Yogasana', 'Individual All Round - Championship' and 'Team Championship'.
- The ultimate objective is to have yogasana included in the Olympic Games.

2.13.60th Goa Liberation Day

- Context: Dec 18, 1961, the Indian government put into action Operation Vijay — the process to annex Goa into the Indian Republic. A 36-hour battle saw Goa liberated from the yoke of a 450-year-long colonial rule. On Dec 19, Portuguese forces surrendered unconditionally.
- On the occasion of the 60th anniversary of Liberation of Goa, a wreath-laying ceremony was organised at the naval base, INS Gomantak, at Vasco in South Goa.
- A Ceremonial Guard was paraded in honour of the brave soldiers who laid down their lives during the operation.
- President visited Goa on the state's Liberation Day and inaugurated a cultural event to mark the beginning of Goa's 60th year of liberation from 451 years of colonial Portuguese.
- The Sugam Sangeet is one of the cultural programs held on Goa Liberation Day.
- This is a form of classical vocal music that incorporates words with a different rhythm or style.
- This Indian musical genre is a poetic expression and a wonderful part of liberation celebrations for the Goan people.
- Goa has a rich and diverse history, dating back to prehistoric times.
- Prehistoric engravings at Usgalimal were discovered in the early 1990s and studied by the Institute of Oceanography in Goa.
- There is even evidence of a pre-historic Goan shamanic practice. (Shamanism is a religious practice that involves a practitioner, a master shaman, who is believed to interact with a spirit world through altered states of consciousness, such as trance)
- After various dynasties ruled Goa, the era of Portuguese autocratic rule began in 1510 after Vasco da Gama's fleet landed in Calicut, with Goa becoming the center of Portuguese control in India
- The state was under the rule of the Kadambas for 300 years and it has various monuments that were built in that era, the most famous among them Tambdi Surla.

2.14.Sheikh Mujibur Rehman

- Year 2020 marks the 100th Birth Anniversary of 'Jatir Pita' Bangabandhu, Sheikh Mujibur Rahman
- Mujibur Rahman was born on 17th March 1920 in Tungipara, India (now in Bangladesh) and passed away on 15th August 1975 in Dhaka, Bangladesh.
- He was a Bengali leader who became the first prime minister of Bangladesh (1972–75) and later became the president of the same in 1975.
- He played a crucial role in advocating political autonomy for East Pakistan, the detached eastern part of Pakistan (now Bangladesh).
- The UNESCO has decided to launch an international prize in the field of 'creative economy' in the name of Bangabandhu Sheikh Mujibur Rahman.
- Starting November 2021, the $ 50,000 award will be given away once in two years for global economic initiatives of the youth.
- According to UNESCO, the international award will create a knowledge-sharing mechanism by capturing, celebrating and communicating best practice in the development of creative entrepreneurship.
- UNESCO has declared 2021 as 'International Year of Creative Economy for Sustainable Development'.
- Currently, there are 23 UNESCO International Awards in the name of international celebrities and organisations.

2.15.The Mamallapuram Dance Festival of 2020

- Mamallapuram also called as Mahabalipuram is a small town situated at a distance of 57 Km from Chennai in the state of Tamil Nadu.
- Mamallapuram dance festival is one of the remarkable festivals in India, completely dedicated to the traditional fine arts of the country.
- This festival is organized for about twenty days in the town of Mahabalipuram.
- The breathtaking dances are performed in ornamented stage with the historic stone sculptures range "The Arjuna Penance" as the backdrop.
- Every year Mamallapuram dance festival is commemorated by the Tourism Department of the Government of Tamil Nadu.
- Now the department has announced the commencement and conclusion of the festival for 2020. This year the event begins from 21st December to 19th January.

Historical importance of Mamallapuram

- The monuments seen today in Mamallapuram were built by the Pallava Kings who ruled this region between the 5th and 8th centuries.
- Hence Mamallapuram monuments are the one of the oldest structural monuments of India built before 1700 years.

- Originally, Mamallapuram complex had more than 400 monuments. Only about 50 of them have survived till date.
- The UNESCO has declared Mamallapuram a World Heritage Site especially highlighting the three monuments namely Descent of the Ganges, Pancha Rathas and Shore Temple
- The word Mahabalipuram was initially spelled as Mamallapuram which means “Great Wrestler” to praise the King Narasimha Varman I.
- Over the period the word turned down into Mahabalipuram.

Sea Shore Temple

- The sea shore temple is also named as ‘Seven Pagodas’ by its pyramidal structure.
- This temple is entirely carved from black stone and it is the first temple. The shore temples consist two temples which is surrounded by small rocks as compound. A big Linga statue is positioned ahead of sea.
- The Shore temple catches the first rays of the Sun. There is an open space auditorium which was used for dancing and daily prayers in ancient period.
- 100 Nandhi (bull) Statues around the shore temples can be seen. Every Nandhi statue made from a single rock. Shore Temple was built using the granite stones.

Pancha rathas

- They are carved in the shape of chariots. They are entirely made out of single stone. The Pancha Rathas or Pandava Rathas are the most well-known out of all the Ratha Temples.
- They are actually dedicated to deities and concepts of the Shaivi (Shiva), Vaishnavi (Vishnu) and Shakti (Durga) traditions of Hinduism.
- Near to the Pancha Rathas an elephant and Rogue lion can be seen which is positioned in opposite directions.

The Descent of the Ganges or Arjuna’s Penance

- Arjuna’s Penance is a rock where the pictured creations are made from a rock. This is a single rock which is of 300 ft. length and 30 ft. in height. 150 statues have been designed on the rock itself. The statues are scuplted into gods, animals, humans.
- This place also praises Lord Shiva at north portion. At the bottom of the rock it praises Lord Vishnu statue.
- This rock also have six pillars which seems like a bone. The entire pillar is made by a single rock.

Krishna’s Butter Ball

- Krishna’s Butter Ball is a massive single rock which stands without any base.

- The total height this ball is about 5 meters and weight about 250 tons (Equal to weight of medium-sized Airplane). Apart from all it is estimated that the stones stands in the place for about an impressive 1200 years.

Krishna Mandapam

- In Krishna Mandapam we can identify a status which seems like Krishna saving the Ayarpadi people from Rain by using the Govardhan hill as an umbrella.
- Statue of Gopalar people calmly staying inside of that Govardhanagiri Hill is amazingly created. The Krishna Mandapam also has a statue of a cow feeding milk to its calf.

Ganesh Ratha Temple

- The Ratha Temple is fully created by rocks. The temple was structured by the King Narasimhavarman I. This temple praises Lord Shiva.
- The temple also have plenty of inscriptions of the period of Narasimhavarman I's grandson, Parmeshvara-Varman I.

Varaha Cave Temple

- This Varaha Cave is positioned in the south side and inside the Varaha avatharam statue. This cave contains plenty of that explainations of the history of varaha avatharam (the boar avatar of Vishnu).
- Varaha cave also has a statue of Perumal sleeping peacefully over a 5 headed snakes in the sea.

Tiger Cave

- Tiger Cave is located 3 km in the north from Mahabalipuram. On center of the cave a stage is created. The stage had been used by the various artist to expose their talents.
- The tiger cave is completely sculpted with the statues of tigers hence the name Tiger cave.

2.16.The Ramanujan Prize

- The Ramanujan Prize for young mathematicians from developing countries has been awarded annually since 2005.
- It was originally instituted by ICTP, the Niels Henrik Abel Memorial Fund, and the International Mathematical Union (IMU)
- The participation of the Abel Fund ended in 2012; the Department of Science and Technology of the Government of India (DST) has now agreed to fund the Prize for a 5 year period, starting with the 2014 Prize.

- The Prize is awarded annually to a researcher from a developing country who is less than 45 years of age on 31 December of the year of the award, and who has conducted outstanding research in a developing country.
- Researchers working in any branch of the mathematical sciences are eligible.
- The Prize carries a $15,000 cash award.
- The Prize is usually awarded to one person but may be shared equally among recipients who have contributed to the same body of work.
- The Selection Committee takes into account not only the scientific quality of the research but also the background of the candidate and the environment in which the work was carried out
- The Committee in particular favours candidates who have overcome adversity to achieve distinction in mathematics.
- The year 2020 Ramanujan Prize for Young Mathematicians was awarded to Dr. Carolina Araujo, Mathematician from the Institute for Pure and Applied Mathematics (IMPA), Rio de Janeiro, Brazil, in a virtual ceremony on 9th December 2020.
- Dr. Araujo, is Vice President of the Committee for Women in Mathematics at the International Mathematical Union, is the first non-Indian women mathematician to receive this prize and will be a role model for all women around the world.
- Srinivasa Ramanujan was a self-taught mathematician who contributed to the theory of numbers. Born in Erode, Tamil Nadu, in 1887
- He died on April 26, 1920, with this year marking his 100th death anniversary
- Ramanujan had obtained a scholarship for the University of Madras, but he ended up losing it because he neglected his studies in other subjects in favour of mathematics.
- Ramanujan published his first paper in the Journal of Indian Mathematical Society in 1911.
- In 1913, Ramanujan started communicating with Godfrey H Hardy, a British mathematician. This led him to obtaining a scholarship from University of Madras and a grant from Trinity College in Cambridge, after which he travelled to England and started to work on some research with Hardy.
- After his advances, especially in the field of partition of numbers, and the publication of his papers in several English as well as European journals, he was elected to the Royal Society of London in 1918.
- After contracting tuberculosis, the mathematician recovered enough in 1919 to return to India, but died the following year, without much recognition. However, the mathematics community recognized him as a genius without peer.
- The Man Who Knew Infinity: A Life of the Genius Ramanujan is a biography of Ramanujan, written in 1991 by Robert Kanigel and published by Washington Square Press

3. Polity & Governance

Click on the links given below to watch the following questions on YouTube

- Video 1
- Video 2
- Video 3
- Video 4

3.1.J&K's Roshni Act

- Context: J&K administration is making the names of the beneficiaries of the now-nullified Roshni Act public, a petition has been filed before the Supreme Court by the beneficiaries claiming they "were not even heard by the J&K High Court as it passed the directions."

All land transferred under the legislation to be retrieved within six months.

The J&K government on October 31 decided to declare all the actions taken under the **Jammu and Kashmir State Land (Vesting of Ownership to the Occupants) Act, 2001**, also known as the Roshni Act, under which 20 lakh kanals of land was to be transferred to existing occupants, as "null and void", and has decided to retrieve the land within six months.

"The J&K government has decided to implement the High Court order, where it declared the Jammu and Kashmir State Land (Vesting of Ownership to the Occupants) Act, 2001 as amended from time to time as unconstitutional, contrary to law and unsustainable," an official spokesperson said.

Land grab through Roshni Act

- J&K was the first region in India to implement a land reform law in 1950 but a lot of land grab took place due to lax governance, with political elites encroaching on valuable land.
- In 2001, J&K Govt enacted the Jammu and Kashmir State Land (Vesting of Ownership to the Occupants) Act that sought to regularise unauthorised land.
- Anybody who had grabbed this land in the past, could now come to the government, make an application and pay a certain fee.
- Once the fee was paid, the land or property would be regularised in the hands of the owner.
- The J&K government then said they would collect fees to the tune of roughly Rs 25,000 crore, which would then be used to upgrade the region's electricity generation, thus bringing "roshni" into the lives of the Kashmiris.

Amendments to Roshni Act over the years

- A major problem of the Roshni Act was that it applied to only those who had grabbed land by 1990. Therefore, there were a lot of complaints from those who had taken land between 1990 and 2001.
- In 2003 J&K Govt amended the law to shift the cut-off date from 1990 to 2004.

- People began grabbing more and more land... or buying it from the poor... on the presumption that this will soon get regularized.
- In 2007, the cut-off date was further shifted to 2007.
- However, in 2014, a report by the Comptroller and Auditor General of India (CAG) found irregularities in the transfer of the encroached land to occupants from 2007 to 2013.
- The report noted that the government had only collected Rs 76 crore of the estimated Rs. 25,000 crore.
- In 2018, J&K Governor repealed the Roshni Act.
- Now anybody who has already got his land regularised by paying the fee, that is okay. But no fresh applications can come in now.
- Under this, 71,000 acres of land in Jammu and 4,174 acres of land in Kashmir were regularized.
- Now, the government has set up a committee to recover all the land that was regularised through the Roshni Act, in the next six months.
- This will be difficult because after people got the land, they must have started building houses and using it in other ways.

3.2.U.P. Unlawful Religious Conversion Prohibition Ordinance, 2020

- Context: The ordinance titled, Uttar Pradesh Prohibition of Unlawful Conversion of Religion Ordinance, 2020 (Uttar Pradesh Vidhi Virudh Dharma Samparivartan Pratishedh Adhyadhesh, 2020 in Hindi) was cleared by the State Cabinet.
  - ✓ While the ordinance has been a subject of intense debate due to the implications it could have on inter-faith marriages, the ordinance governs not just inter-faith marriages but all religious conversions.

Some of the key provisions of the ordinance are:

- Definition of religion Section and allurement:
  - ✓ 'Religion' has been defined in [Section 2(h)] as any organized system of worship pattern, faith, belief, worship, or lifestyle as prevailing in India or any part of it and defined under any law or custom for the time being in force.
  - ✓ 'Allurement' [Section 2(a)] means any gift, gratification, easy money or material benefit either in cash or kind, employment, free education in a reputed school run by any religious body or better lifestyle, divine pleasure or otherwise.
- Definition of religion convertor:
  - ✓ 'Religion Convertor' [Section 2(i)] means a person of any religion who performs any act of conversion from one religion to another religion and by whatever name he is called such as Father, Karmkandi, Maulvi or Mulla, etc.

- What does the ordinance prohibit?
  - ✓ One of the key provisions of the ordinance is Section 3.
  - ✓ It states that no person shall convert or attempt to convert either directly or otherwise any other person from one religion to another by use or practice of misrepresentation, force, undue influence, coercion, allurement or by any fraudulent means or by marriage nor shall any person abet, convince or conspire such conversion.
- Who can lodge an FIR?
  - ✓ As per Section 4, any aggrieved person, his/her parents, brother, sister, or any other person who is related to him/her by blood, marriage, or adoption may lodge an FIR of such conversion which contravenes the provisions of Section 3.
- Punishment:
  - ✓ Section 5 prescribes punishment for contravention of Section 3.
  - ✓ A person found guilty of offence under Section 3 will be punishable with imprisonment from 1 to 5 years and fine of upto Rs. 15, 000.
  - ✓ Importantly, however, contravention of Section 3 with respect to a minor, woman or a person belonging to Scheduled Caste or Scheduled Tribe shall attract a punishment of imprisonment between 2 to 10 years and shall also be liable to fine of up to Rs. 25,000.
  - ✓ A person previously convicted under section 3, if found guilty for a second time, will be punishable with the double the punishment prescribed.
- Effect on marriage:
  - ✓ One of the most debated aspect of the ordinance is the implications it will have on inter-faith marriages.
  - ✓ Section 6 states that any marriage which was done for the sole purpose of unlawful conversion or vice-versa by the man of one religion with the woman of another religion, either by converting himself/herself before or after marriage or by converting the woman before or after marriage, shall be declared void by the family court or where the family court is not established, by the court having jurisdiction to try such case on a petition presented by either party thereto against the other party of the marriage.
- Procedure for conversion:
  - ✓ As stated earlier, the ordinance does not affect just inter-faith marriages. Anybody who wishes to convert from one religion to another has to go through the procedure prescribed by the ordinance. The procedure is laid down in Sections 8 and 9.
- Prior notice:
  - ✓ As per the Section 8, one who desires to convert his or her religion should give a declaration in the form prescribed in Schedule I at least sixty days in advance to the District Magistrate or the Additional District Magistrate specially authorized by District Magistrate, that he wishes to convert his/her religion on his/her own and with his or her free consent without any force, coercion, undue influence or allurement.

- ✓ The Religious Convertor who is slated to perform the conversion ceremony should also give a one month's advance notice in the form prescribed in Schedule II of such conversion to the District Magistrate or the Additional District Magistrate appointed for the same by the District Magistrate.
- ✓ Thereafter, the police will conduct a police inquiry to ascertain the real intention, purpose, and cause of the proposed religious conversion.
- ✓ A person undergoing religious conversion who violates Section 8 shall be punished with imprisonment between 6 months and 3 years and fine which is not below Rs. 10,000.
- ✓ A religious converter who violates Section 8 shall be punished with imprisonment between 1 to and 5 years and fine which is not less than Rs. 25,000.

- Declaration post conversion:
  - ✓ Section 9 lays down the procedure to be followed post conversion.
  - ✓ It mandates that a converted person should send a declaration in the form prescribed in Schedule III within 60 days of the date of conversion to the District Magistrate of the district within which the person ordinarily resides.
  - ✓ The declaration should contain all requisite details including permanent address, place of residence, the religion to which the person originally belonged and the religion to which the person has converted.
  - ✓ The converted individual should then appear before the District Magistrate within 21 days from the date of sending of declaration to confirm the contents of the declaration.
  - ✓ The District Magistrate will record the contents of the declaration and the confirmation in a register maintained by him for this purpose.
  - ✓ Contravention of provisions of Section 9 will render the conversion illegal and void.
- Burden of proof on accused:
  - ✓ Another crucial provision in the ordinance is Section 12.
  - ✓ It states that the burden of proof as to whether a religious conversion was effected through misrepresentation, force, undue influence, coercion, allurement or by any fraudulent means or by marriage, lies on the person who has caused the conversion and, where such conversion has been facilitated by any person, on such other person.

3.3.President's powers to pardon- in US, India

- Context: US President exercised his powers under the Constitution to pardon, his former National Security Advisor, who had twice pleaded guilty to lying to the FBI.

How US President pardons

- The President of the US has the constitutional right to pardon or commute sentences related to federal crimes.
- The US Supreme Court has held that this power is "granted without limit" and cannot be restricted by Congress.

- Clemency is a broad executive power, and is discretionary — meaning the President is not answerable for his pardons, and does not have to provide a reason for issuing one.
- But there are a few limitations. For instance, Article II, Section 2 of the US Constitution says all Presidents "shall have Power to grant Reprieves and Pardons for Offenses against the United States, except in Cases of Impeachment".
- The power only applies to federal crimes and not state crimes — those pardoned by the President can still be tried under the laws of individual states.

How Indian President pardons

- Unlike the US President, whose powers to grant pardons are almost unfettered, the President of India has to act on the advice of the Cabinet.
- Under Article 72 of the Constitution, "the President shall have the power to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence any person convicted of any offence where the sentence is a sentence of death".
- Under Article161, the Governor too has pardoning powers, but these do not extend to death sentences.
- The President cannot exercise his power of pardon independent of the government.
- Rashtrapati Bhawan forwards the mercy plea to the Home Ministry, seeking the Cabinet's advice.
- The Ministry in turn forwards this to the concerned state government; based on the reply, it formulates its advice on behalf of the Council of Ministers.
- In several cases, the SC has ruled that the President has to act on the advice of the Council of Ministers while deciding mercy pleas.
- These include Maru Ram vs Union of India in 1980, and Dhananjoy Chatterjee vs State of West Bengal in 1994.
- Although the President is bound by the Cabinet's advice, Article 74(1) empowers him to return it for reconsideration once.
- If the Council of Ministers decides against any change, the President has no option but to accept it.

3.4.One Nation, One Election

- Context: Prime Minister of India again raised the pitch for "One Nation, One Election" and a single voter list for all polls in order to prevent the impact of the model code of conduct on development works every few months due to frequent spread-out polls.
- Elections are held at different places every few months and it hampers the developmental work.

- Only one voter list should be used for Lok Sabha, Vidhan Sabha and other elections so as to prevent wastage of time and money.
- The push for "One nation, one election" came from Prime Minister initially in 2016.
- The Law Commission submitted a draft report to the government on August 30, 2018, endorsing the proposal.
- It even recommended changes to the Constitution and the electoral law so as to enable holding simultaneous polls.

What are simultaneous polls?

- Currently, elections to the state assemblies and the Lok Sabha are held separately — that is whenever the incumbent government's five-year term ends or whenever it is dissolved due to various reasons.
- This applies to both the state legislatures and the Lok Sabha.
- The terms of Legislative Assemblies and the Lok Sabha may not synchronise with one another.
- For instance, Rajasthan faced elections in late 2018, whereas Tamil Nadu will go to elections only in 2021.
- But the idea of "One Nation, One Election" envisages a system where elections to all states and the Lok Sabha will have to be held simultaneously.
- This will involve the restructuring of the Indian election cycle in a manner that elections to the states and the centre synchronise.
- This would mean that the voters will cast their vote for electing members of the LS and the state assemblies on a single day, at the same time (or in a phased manner as the case may be).

What is the background?

- Simultaneous elections are not new to India.
- They were the norm until 1967.
- But following dissolution of some Legislative Assemblies in 1968 and 1969 and that of the Lok Sabha in December 1970, elections to State Assemblies and Parliament have been held separately.
- The idea of reverting to simultaneous polls was mooted in the annual report of the Election Commission in 1983.
- The Law Commission's Report also referred to it in 1999.
- The Niti Aayog prepared a working paper on the subject in January 2017.
- In the working paper that the Law Commission brought out in April 2018, it said that at least "five Constitutional recommendations" would be required to get this off the ground.
- The final decision on holding simultaneous elections is yet to be taken.

Why do some support?

- Simultaneous polls will reduce enormous costs involved in separate elections.
- The system will help ruling parties focus on governance instead of being constantly in election mode.

- Simultaneous polls will boost voter turnout, according to the Law Commission.

3.5.Essential Services Maintenance Act

- Context: The Uttar Pradesh government extended the Essential Services Maintenance Act in the state, banning strikes in all departments and corporations under it for a period of another six months.
- The ESMA is a law made by the Parliament of India under List No. 33 in Concurrent List of 7th Schedule of Constitution of India.
- Its execution rests entirely on the discretion of the State government.
- Each state has a separate state Essential Services Maintenance Act with slight variations from the central law in its provisions. This freedom is accorded by the central law itself.
- ESMA, gives police right to arrest without a warrant anybody violating the Act's provisions.
- Under ESMA, employees in a long list of "essential services" like post and telegraph, railway, airport and port operations are prohibited from going on strike.
- The Act mandates imprisonment for a term which may extend to one year, or fine which may extend to one thousand rupees, or with both, to any person who instigates a strike which is illegal under this Act.

What are essential services?

- Any service with respect to which the Parliament has power to make laws or the government feels that its discontinuation would affect the maintenance of supplies and services necessary for sustaining life is considered an essential service.

Which services fall under this category?

- Services related to public conservancy, sanitation, water supply, hospitals or related with the defence of the country are considered essential.
- Any establishment dealing with production, supply or distribution of petroleum, coal, power, steel and fertilizers also falls under the essential services category.
- Apart from this, any service in connection with banking can be subject to ESMA. Communication and transport services and any government undertaking related to the purchase and distribution of food grains are also subject to this act.
- The employees can't even refuse to work overtime if their work is considered necessary for the maintenance of any of the essential services.

Is it illegal for these employees to go on strike?

- A strike per se is not illegal, but the government is empowered to prohibit it if it feels that the strike is gravely disturbing public life. For that, the government has to issue a general or special order to end the strike. Any strike becomes illegal after the passing of this order.

What actions can be taken against the employees?

- Persons who commence the strike as well as those who instigate it are liable to disciplinary action, which may include dismissal.

- As the strike becomes illegal after ESMA is invoked, legal action can also be taken against these employees.
- Any police officer is empowered to arrest the striking persons without a warrant.
- Persons participating in or instigating the strike are punishable with imprisonment, which may extend to one year or with fine or with both.

What is the Essential Commodity Act?

- The Essential Commodity Act empowers the government to control production, supply and distribution of certain commodities.
- The act is aimed at maintaining or increasing supplies and for securing the equitable distribution and fair price availability of these commodities.
- The act is also intended to work against unethical trade practices like hoarding and black-marketing.

3.6.CCTVs in offices of CBI, ED, police stations

- With the aim of preventing custodial torture, the Supreme Court ordered for installation of CCTV cameras in the offices of the Central Bureau of Investigation (CBI), Enforcement Directorate (ED), the National Investigation Agency (NIA) and other agencies, in addition to police stations across the country.
- Extending the ambit of its 2018 order , SC has directed the central government to get CCTV cameras with audio-recording facility installed in the offices of CBI, ED, NIA, Narcotics Control Bureau (NCB), Department of Revenue Intelligence (DRI), Serious Fraud Investigation Office (SFIO) and all such agencies, which have the power to make arrests and interrogate.
- In 2018, the court had passed a judgment for bringing all police stations under the surveillance of the CCTV cameras to check human rights abuses.
- For this purpose, all states were required to constitute independent committees that could study CCTV camera footages and periodically publish reports of its observations.
- Further, this judgment asked the Central government to a set up a Central Oversight Body (COB) and provide necessary funds so that it could issue necessary directions to states and union territories to facilitate videography of the crime scenes and compliance with other directions of the apex court.
- The court order made SHO of each police station responsible for upkeep and maintenance of CCTV cameras.
- The cameras need to be installed at all entry and exit points, main gate of the police station, all lock-ups, reception area, officials' rooms, and station hall.
- The court has directed the states to make sure that good quality cameras with high resolution, night vision and a recording retention facility for at least a year are purchased and installed immediately in all police stations.
- A State Level Oversight Committee, comprising secretary or additional secretary from home and finance departments, director general of police or inspector general of police and a member of the state women's commission, must also be constituted to make certain the court's directions are duly complied with, besides taking care of budgetary allocations and supervision at the state level.

- Similarly, District Level Oversight Committees, consisting of the district magistrate, a superintendent of police and a municipality mayor, will be set up in all districts to interact with the SHOs for upkeep of CCTVs and review the footage for any human right violation.

3.7.NRIs could soon be able to vote via post.

- Context: The Election Commission (EC) approached the Law Ministry to permit NRIs to cast their votes from overseas through postal ballots.
- The EC told the government it had received representations from the Indian diaspora about facilitating voting through postal votes since travelling to India only for this purpose is a "costly affair".
- The Commission informed the government that it is "technically and administratively ready" to extend the Electronically Transmitted Postal Ballot System (ETPBS) to voters abroad for elections next year in Assam, West Bengal, Kerala, Tamil Nadu and Puducherry.

What is the current process of voting for Indian citizens living abroad?

- An NRI can vote in the constituency in which her place of residence, as mentioned in the passport, is located.
- She can only vote in person and will have to produce her passport in original at the polling station for establishing identity.
- Voting rights for NRIs were introduced only in 2011, through an amendment to the Representation of the People Act 1950.

If approved, how will voting by postal ballots work for NRIs?

- Any NRI interested in voting through the postal ballot in an election will have to inform the Returning Officer (RO) not later than five days after the notification of the election.
- On receiving such information, the RO will dispatch the ballot paper electronically.
- The NRI voters will download the ballot paper, mark their preference on the printout and send it back along with a declaration attested by an officer appointed by the diplomatic or consular representative of India in the country where the NRI is resident.
- It's not clear, if the voter will return the ballot paper herself through ordinary post or drop it off at the Indian Embassy, which may then segregate the envelopes constituency-wise and send them to the Chief Electoral Officer of the state concerned for forwarding to the RO.

How and when did the proposal originate?

- The EC began to look for options to enable NRIs to vote from overseas after it received several requests, and three writ petitions were filed by NRIs in the Supreme Court in 2013 and 2014.
- A 12-member committee was set up after the 2014 Lok Sabha elections to study mainly three options — voting by post, voting at an Indian mission abroad and online voting.
- The committee ruled out online polling as it felt this could compromise "secrecy of voting".
- It also shot down the proposal to vote at Indian missions abroad as they do not have adequate resources.

- In 2015, the panel finally recommended that NRIs should be given the "additional alternative options of e-postal ballot and proxy voting", apart from voting in person.
- Under proxy voting, a registered elector can delegate his voting power to a representative. The Law Ministry accepted the recommendation on proxy voting.

What happened to the proposal to grant proxy voting rights to overseas electors?

- The Union Cabinet passed the proposal on proxy voting rights for NRIs in 2017.
- The government then brought a Bill amending the Representation of the People Act 1950.
- The Bill was passed by Lok Sabha and was awaiting Rajya Sabha's approval when it lapsed with the dissolution of the 16th Lok Sabha. This proposal hasn't been revived yet.
- To extend the postal voting facility to overseas voters, the government only needs to amend the Conduct of Election Rules 1961. It doesn't require Parliament's nod.

3.8.Convicted Legislators cannot be barred for life from contesting polls

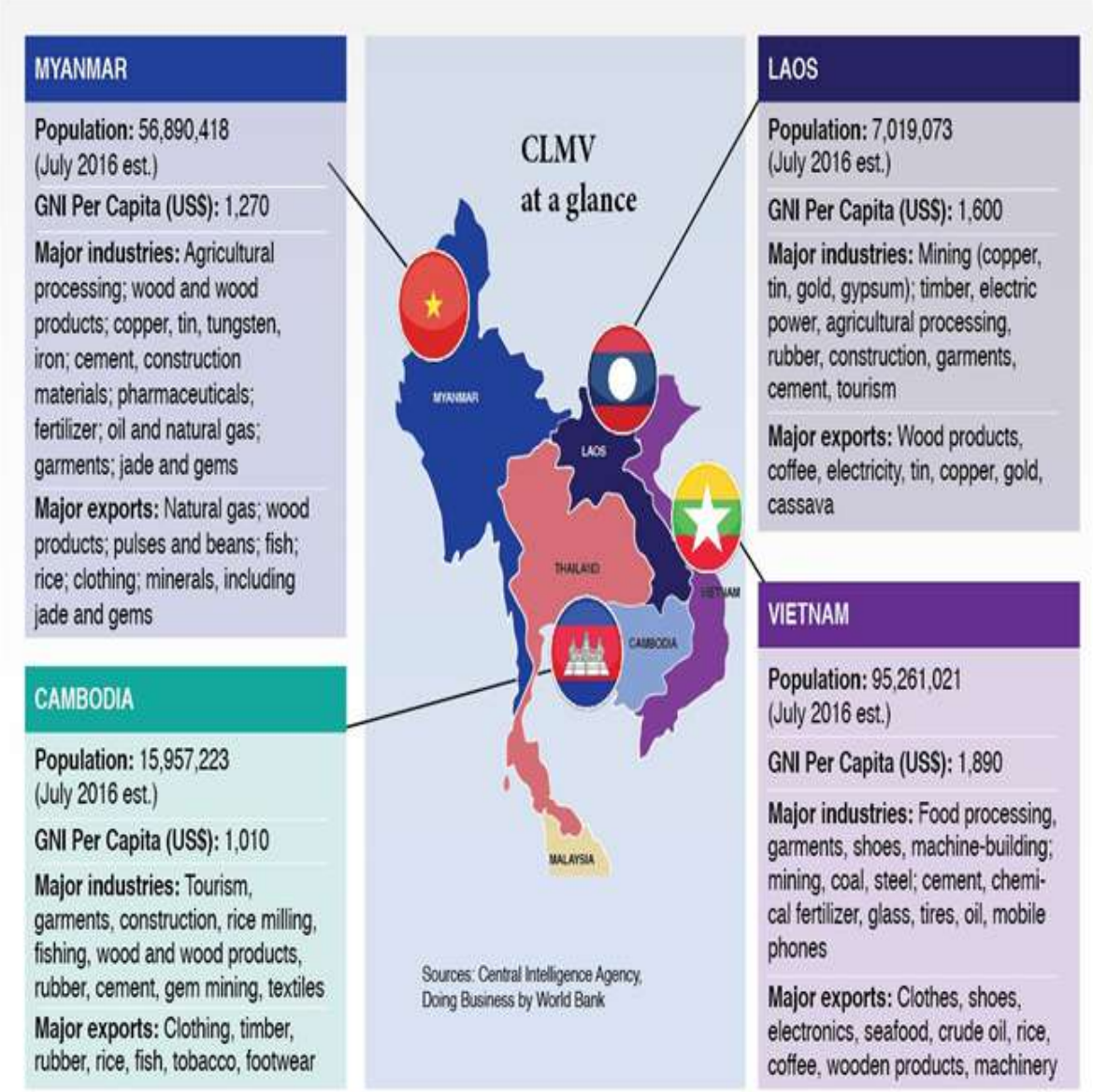
- Context: The Central government has told the Supreme Court that it rejected the idea of barring convicted legislators for life from contesting elections, forming or becoming an office-bearer of a political party.
- The Union Ministry of Law and Justice said an elected representative of the people cannot be equated with public servants who are banned for a lifetime on conviction.
- The government said disqualification under the Representation of the People Act of 1951 for the period of the prison sentence and six years thereafter was enough for legislators.
- Election Commission has endorsed a life ban as necessary step towards decriminalization of politics.
- The case is based on a plea by Supreme Court advocate who argued that a life ban on conviction should uniformly apply for members of the judiciary, executive and the legislature.
- There should not be any discrimination of one from the other.
- He said an MP or MLA convicted for offences enumerated in Section 8 of the Representation of the People Act should be banned for life.
- He argued that while a public servant or a government employee is debarred for life on conviction for offences under the Indian Penal Code, money laundering law, foreign exchange violation, UAPA or cheque cases, among other laws, a legislator is "only disqualified for the same offences for a specified period".
- Offences under IPC apply to them as much as any other person.
- SC itself had said in a Constitution Bench decision in the Public Interest Foundation case of 2019 that though criminalisation of politics is a "bitter manifest truth", which is a termite to the citadel of democracy, the court cannot make the law.

3.9.Hold fresh polls where NOTA got most votes

- Context: An advocate has moved the Supreme Court for a direction that fresh elections should be held in a constituency where NOTA ('None of the above' option) garnered the maximum number of votes. Besides, none of the candidates who lost to NOTA should be allowed to contest the fresh polls.
- If the electorate has rejected candidates by voting for NOTA, the parties should be barred from fielding them again in the fresh polls. The parties should accept that the voters have already made their discontent loud and clear.
- Arguments made:
  - ✓ Right to reject and elect new candidate will give power to the people to express their discontent.
  - ✓ Right to reject will check corruption, criminalisation, casteism, communalism
  - ✓ Parties would be forced to give tickets to honest and patriotic candidates
- The 'right to reject' was first proposed by the Law Commission in 1999.
- It also suggested that the candidates be declared elected only if they have obtained 50%+1 of the valid votes cast.
- Similarly, the Election Commission endorsed 'Right to Reject', first in 2001, and then in 2004 in its Proposed Electoral Reforms.
- The 'Background Paper on Electoral Reforms', prepared by the Ministry of Law in 2010, had proposed that if certain percentage of the vote was negative, then election result should be nullified and new election held, the petition said.
- The use of NOTA in elections:
  - ✓ The option of NOTA for Lok Sabha and assembly elections was prescribed by the SC in 2013.
  - ✓ The option of NOTA in RS polls was introduced by the EC in 2014.
  - ✓ India became the 14th country to institute negative voting.
- Various enterprises from India and the CLMV countries showcased their products and services in agriculture, agri-food processing, farm inputs, allied services, manufacturing, automobiles, textile, and machine tools, power and clean energy, infrastructure, transport logistics, healthcare pharmaceuticals, IT, skills and education and many others.
- Important points for India:
  - ✓ The Buddhist Circuit tourism through a more interconnected railway system
  - ✓ The setting up of the Moreh Checkpost in Manipur.
  - ✓ A Project Development Fund with the title PDF- CLMV Fund is to be set up with an initial amount of INR 500 Crores.
  - ✓ The construction of the Trilateral Highway between India, Myanmar and Thailand at Kaladan Multimodal Transit Transport Project for promotion of connectivity in the regions.

3.10.CLMV Conclave

- Context: The Confederation of Indian Industry, CII in collaboration with the Union ministry of commerce and industry recently organised a virtual business conclave with Cambodia, Lao PDR, Myanmar, and Vietnam
- CLMV countries (Cambodia, Lao PDR, Myanmar, and Vietnam) act as key growth points for the ASEAN countries.
- It provides the region with a wider market outreach that results in preferential or free trade agreements, FTAs, with many other large economies of the world.
- The theme of the conclave was mainly focused on healthcare and pharma and the topics of the discussion deliberated by the expert speakers was on 'Creating a safer and healthier future and available opportunities for new investments and cooperation in the health and pharma sectors in the region'.
- It was held on CII HIVE which is the virtual platform of CII.



How is a NOTA vote cast?

- The EVMs have the NOTA option at the end of the candidates' list.
- Earlier, in order to cast a negative ballot, a voter had to inform the presiding officer at the polling booth.
- A NOTA vote doesn't require the involvement of the presiding officer.

Why have NOTA if there's 'no electoral value'?

- NOTA gives people dissatisfied with contesting candidates an opportunity to express their disapproval.
- This, in turn, increases the chances of more people turning up to cast their votes, even if they do not support any candidate, and decreases the count of bogus votes.
- Also, the Supreme Court has observed that negative voting could bring about "a systemic change in polls and political parties will be forced to project clean candidates"

3.11.Sahyogini Matru Samitis (SMS)

- Context: SahyoginiMatru Samitis (SMS) will have authority to monitor implementation of ICDS, fix accountability of service provider institutions at local level.
  - ✓ The Department of Women and Child Development, Madhya Pradesh is set to create a decentralised structure under the National Food Security Act (NFSA), 2013, to give a legal backing to community-centric SahyoginiMatru Samiti (SMS) / maternal associate committees.
  - ✓ There is an urgency of Integrated Child Development Services (ICDS) to ensure that elected local body representatives monitor and improvise programmes related to nutrition and maternal entitlement.
  - ✓ The supplementary nutrition programme under the ongoing ICDS provides entitlement to women and children under the NFSA, 2013.
  - ✓ However, most states have not taken any note of this critical provision so far.
  - ✓ They have been reticent in showing willingness to create legal structures as enshrined under the Act.
- It is in this backdrop that the Madhya Pradesh government has made a positive move: The December 2, 2020 order endowed the SMS with authority to monitor the implementation of ICDS and fix accountability of service provider institutions at the local level.
- It also allowed for discharging all functions of the vigilant committee in compliance of the mandate rendered by the NFSA.
- The NFSA, 2013, also asked for reforms in food and nutrition programmes, especially in the context of public accountability, transparency and vigilance systems.
- The Act requires the concerned departments (linked with NFSA) to make efforts for creating systems for community monitoring and social audit of schemes.

- Following this legal mandate, the state order sets out that SahyoginiMatru Samiti is authorised to function as vigilance committee and to conduct social audit of nutrition and maternity entitlement programmes.
- The samiti will be formed at every anganwadicentre, whereas the NFSA talked about formation of vigilance committee at every public distribution system (PDS) shop.
- The proposed structure of the SMS is designed in a manner that it addresses the three essential principles: Leading involvement of local governance institution, multi-social-sectoral convergence and overcoming geographical barriers.
- The samiti will be headed by an elected representative of the local body, preferably by a woman representative. It will have nine additional members.

The classification

- It includes any woman (above the age of 49 years), who is willing to serve voluntarily; a school teacher; a women member of another committee formed by any other department; chairperson of women self-help group; mothers of a child up to six years of age; mother of adolescent girls, woman from reproductive age group and member of family with pregnant woman with complication or severely malnourished child.
- The nine members (of total 15) will represent the key entitlement holders.
- The Madhya Pradesh guideline authorises SMS to monitor supply, distribution, quality of supplementary nutrition and create dialogue with the entitlement holders.

3.12.Maharashtra Police to use software to crack down on child porn

- Context: The cyber wing of the Maharashtra Police recently acquired a software from Interpol that would help them track down child pornography uploaded online
  - ✓ The Interpol has a software that uses various mechanisms like detecting nudity in images, recognising age of the person through facial structures, among other filters.
  - ✓ It also has in-built algorithms to look for keywords around child pornography that would for example help law enforcement agencies track forums that indulge in these crimes.
  - ✓ Based on these filters, the software 'Crawler' scans the net looking for such images, videos and text.
  - ✓ If they find any such media, it is added to the database after which officers identify cases that could fall under child pornography.

Which states are being provided this software in India?

- While initially the database was with Interpol, they have now also provided the software to Maharashtra.
- Earlier this year, 12 officers of Maharashtra cyber were trained by the Interpol officers in the use of this software after which they were provided access to it.

- Kerala too was to undergo training by Interpol last year after several such media was found to be uploaded from there.

What is the TRACE team set up by Maharashtra Cyber to counter child pornography?

- The 12 officers who went for training to the South Asian wing of Interpol form the core of Tactical Response Against Cyber Child Exploitation (TRACE) Unit.
- Those 12 officers trained a batch of 270 policemen across the state in the use of the software to track cases of child pornography.
- The TRACE unit was primarily set up to act against child pornography in Maharashtra that is part of a larger campaign against Child Sexual Abuse Material (CSAM) across the country since 2019.

Why has there been a boost in action against CSAM in India since 2019?

- India's fight against Child Sexual Abuse Material (CSAM) received a boost in 2019 when National Centre for Missing and Exploited Children (NCMEC), a US-based nonprofit that works to prevent child exploitation, started sharing tip-offs about child pornography in India with Indian agencies.
- These tip offs were received by the National Crime Records Bureau (NCRB) which then passed it on to the states where the child pornography related incident had taken place.
- A total of 25,000 cases of child pornography being uploaded were reported in the five months between September 2019 and January 2020 across the country.
- While Delhi topped the list when it comes to people suspected to be involved in uploading child-porn, Maharashtra, Gujarat, Uttar Pradesh and West Bengal are the other top states as per the data.

What is 'Operation Blackface' carried out in Maharashtra?

- 'Operation Blackface' is part of the larger action taken against CSAM across the country.
- Acting on the tip off provided by NCRB, Maharashtra Cyber cops started forwarding complaints to the districts where FIR's were registered against accused persons.
- In the current year alone, there have been above 100 FIR's registered in cases linked to CSAM and nearly 50 persons placed under arrest.

3.13.Karnataka Assembly passes anti-cow slaughter Bill

- Context: Karnataka passed the Karnataka Prevention of Slaughter and Preservation of Cattle Bill (2020) .The Bill envisages a ban on all forms of cattle slaughter and stringent punishment for offenders.
  - ✓ The Bill is not completely new by itself. It is a revised version of a law passed in 2010.
  - ✓ It was shelved in 2013 after the Bill failed to get the Governor's assent.
  - ✓ The Govt then reverted to Karnataka Prevention of Cow Slaughter and Preservation of Animals Act, 1964, that allowed cow slaughter with certain restrictions.
  - ✓ The 1964 law allowed the slaughter of bullock, buffalo-male or female if it was certified by a competent authority to be above the age of 12 years, incapacitated for breeding or deemed sick.

How is 'beef' and 'cattle' defined in the latest Karnataka Bill?

- While 'beef' is defined as the flesh of cattle in any form, the word 'cattle' is defined as "cow, calf of a cow and bull, bullock, and he or she buffalo below the age of thirteen years".
- The Bill also terms shelters established for the protection and preservation of cattle registered with the Department of Animal Husbandry and Fisheries as 'gau-shalas'.

Who has the power to conduct searches?

- Police officers ranked sub-inspector and above or a competent authority will have the power to search premises and seize cattle and materials used or intended to use to commit the offence.
- Such seizures, if any, will then be reported before the Sub-Divisional Magistrate.

What are the penalties?

- Terming cow slaughter as a cognizable offence, violators can attract three to seven years of imprisonment.
- While a penalty between Rs 50,000 and Rs 5 lakh can be levied for the first offence, second and subsequent offences can attract penalties ranging between Rs 1 lakh and Rs 10 lakh.

3.14.Shakti Act, 2020

- The Maharashtra government presented a draft bill making changes to existing laws on violence against women and children. The Bill, proposed to be enacted as Shakti Act, 2020.

What is the reason given by Maharashtra to bring in a new law?

- The main reason given by the government for bringing in the new law is an increase in the number of cases of violence, specifically sexual violence against women and children.
- In order to effectively control the heinous sexual offences against women and children, it is necessary to complete the investigation and the trial of these cases within a time frame, which may deter the perpetrators from committing such offences. Stringent punishment, including heavy fines and death penalty, needs to be prescribed.

Which laws are proposed to be amended?

- The draft Bill proposes to make changes to the Indian Penal Code, the Code of Criminal Procedure and the Protection of Children from Sexual Offences Act. The changes are proposed in existing sections of rape, sexual harassment, acid attack and child sexual abuse.
  - ✓ The Bill proposes death penalty in cases of rape, gangrape, rape by persons in authority, aggravated sexual assault of minors and in cases of acid attack when grievous injury is caused.
  - ✓ The Bill also proposes to add a heavy fine amount of up to Rs 10 lakh on those found guilty.
  - ✓ The existing law had provisions for a fine but did not specify the amount in most sections. In cases of acid attacks, where grievous injury is caused to a victim, a fine of up to Rs 10 lakh is proposed to be paid to the victim for treatment including plastic surgery and reconstruction.
  - ✓ The Bill also proposes amendments to the Criminal Procedure Code, directing for an investigation in these cases to be completed within 15 days after an FIR is filed, extendable only by seven days.
- The Bill also states that a trial has to be completed within 30 days after the charge sheet is filed against an accused. An appeal filed before a higher court is proposed to be disposed of within 45 days.
- The Bill proposes setting up exclusive courts for this purpose. While such provisions for speedy disposal of cases and setting of special courts are also present in the POCSO Act, the disproportionate ratio between cases filed and the existing infrastructure including in forensics, judiciary leads to higher pendency.

Are there any specific provisions related to social media?

- The draft Bill proposes an additional law to deal with abuse of women on social media. Section 354E is added to include intentional acts creating "a sense of danger, intimidation, fear to a woman" apart from insulting her modesty by any act, deed or words including offensive communication will be an offence with a maximum punishment of two years and a Rs 1 lakh fine.
- This also includes uploading morphed videos of women or threatening them with uploading of photos, videos which could defame, cause disrepute to them or violate their privacy.
- The Bill also makes it mandatory for Internet, telephone providers and social media platforms to share electronic records, data for probes in cases of sexual violence against women and children within seven days or a punishment of simple imprisonment for one month and fine up to Rs 5 lakh can be imposed.

Provisions for "false" information and "implied consent"

- The Bill also makes provision for making a "false complaint" or provides false information in respect of offence committed stating that anyone who does that "solely with the intention to humiliate, extort or threaten or defame or harass" a person shall face imprisonment for a term up to one year or fine or both.

Other provisions

- The Bill also proposes setting up of a "Women and Children Offenders Registry" linked to the National Registry of Sexual Offenders and will be made available to law enforcement agencies with details of persons convicted of specified offences of sexual violence against women and children. A separate police team will also be set up in each district to probe such cases.

- The Bill also states that the government will set up institutions like the One Stop Centre for providing victims rehabilitation, legal aid, counselling, medical support. Many of these are already proposed under various schemes like Manodhairya in the state.

3.15.France's draft law against 'Islamism'

- Context: French cabinet presented a draft law called a law "to reinforce Republican principles. The Bill comes in the wake of a series of terror attacks in recent years.

What does the proposed law aim to do?

- It envisages a range of measures, including school education reforms to ensure Muslim children do not drop out, stricter controls on mosques and preachers, and rules against hate campaigns online.
- Once the law comes into force, French mosques could see increased surveillance of their activities, such as financing.
- The government would be able to exercise supervision over the training of imams, and have greater powers to shut down places of worship receiving public subsidies if they go against "republican principles" such as gender equality.
- Moderate community leaders targeted by an extremist "putsch" could receive protection.
- Under French secularism laws, or laïcité, there is already a ban on state employees displaying religious symbols that are "conspicuous", such as the crucifix or hijab.
- This ban would now be extended beyond government bodies to any sub-contracted public service.
- There would also be a clampdown on home-schooling for children over age three, with parents from to be dissuaded from enrolling them in underground Islamic structures.
- Doctors who issue "virginity certificates" would be fined or jailed.
- Officials would be banned from granting residency permits to polygamous applicants.
- Couples would be interviewed separately by city hall officials prior to their wedding to find out if they have been forced into marriage.
- Stricter punishments would be introduced for online hate speech.

What has been the reaction?

- The sharpest criticism of the Bill has come from abroad.
- Turkey has called the proposed law an "open provocation".
- Critics have expressed alarm that the Bill could lead to the conflation of the Islamic religion with Islamism, a political movement, and lead to the alienation of French Muslims.

3.16.Three Capitals Of Andhra Pradesh

- Context: Opposition Party in Andhra Pradesh challenged the state government to conduct a referendum on the three capitals for the state plan.
- In January 2020, The Andhra Pradesh Decentralisation and Equal Development of All Regions Bill, 2020, was passed paving the way for three capitals for the state.

- Amaravati - legislative capital, Visakhapatnam- executive capital and Kurnool the judicial capital.
- Opposition is in favor of only Amravati as a single capital.
- Government argued it is against building one mega capital while neglecting other parts of the state.
- Historically recommended: According to the government, decentralisation was the central theme in recommendations of all major committees that were set up to suggest a suitable location for the capital of Andhra Pradesh.
- It had been agreed in the November 16, 1937 Sri Bagh Pact (between leaders of coastal Andhra and Rayalaseema) that two university centres should be established in Waltair (Visakhapatnam) and Anantapur in Rayalaseema, and that the High Court and Metropolis should be in the coastal districts and Rayalaseema respectively.
- In December 2010, the Justice B N Srikrishna Committee, set up to look into the demand for a Telangana state, said Rayalaseema and North Coastal Andhra were economically the most backward, and the "concentration of development efforts in Hyderabad is the key reason for demand of separate states".
- In August 2014, the K Sivaramakrishnan Committee appointed to identify locations for the new capital of AP said the state should see decentralised development, and that one mega capital city was not desirable.
- G N Rao Committee: A Committee under former IAS officer G N Rao, in its December 2019 report, recommended three capitals for balanced growth, and four regional commission rates along the lines of Karnataka.
- BCG recommendation: The government sought an opinion from the global management consulting firm Boston Consultancy Group, which on January 3, 2020, recommended that Visakhapatnam should be the seat of the Governor, Chief Minister, and all government departments, and a High Court Bench, and have provisions for a Legislative Assembly for use in an emergency; Vijayawada/ Amaravati should have the Assembly and a High Court Bench; Kurnool should have the High Court and tribunals.
- High-powered Committee: A high-power Committee appointed by the government to study the recommendations of the G N Rao Committee and the BCG suggested that the state should be demarcated into zones with separate zonal planning and development boards in order to ensure inclusive development, and that infrastructure projects focused Rayalaseema and North Coastal Andhra should be prioritised.

Major practical problems

- The government argues that the Assembly meets only after gaps of several months, and government Ministers, officers, and staff can simply go to Amaravati when required.

- However, coordinating between seats of legislature and executive in separate cities will be easier said than done, and with the government offering no specifics of a plan, officers and common people alike fear a logistics nightmare.
- The distances in Andhra Pradesh are not inconsiderable.
- Executive capital Visakhapatnam is 700 km from judicial capital Kurnool, and 400 km from legislative capital Amaravati. The Amaravati-Kurnool distance is 370 km. The time and costs of travel will be significant.
- The AP Police are headquartered in Mangalagiri, 14 km from Vijayawada, 400 km to Visakhapatnam.
- Kurnool, also does not have an airport.

3.17.Criticism of Maharashtra Shakti Bill, 2020

- Context: The Maharashtra Shakti Bill, 2020, and The Special Court and Machinery for Implementation of Maharashtra Shakti Criminal Law, 2020 — that enhance punishment for violence against women and children, and include the death penalty for some offences, which were recently passed have been criticised by prominent women's rights advocates for being "draconian" and "anti-women".

Who are the individuals and groups opposing the two Bills?

- Women and child rights groups, lawyers, activists, academics and LGBTQ+ rights activists.

What are their objections?

- It is argued that the two Bills — framed on the lines of The Andhra Pradesh Disha Act, 2019 — should have been discussed with lawyers, activists, and academics working on women's issues before they were passed by the state Cabinet.
- An amendment has been proposed to Section 375 (rape) of the IPC, to add an "explanation" that says that in cases where parties are adults and their conduct suggest there was "consent or implied consent", a presumption of consent will be made.
- This, the activists say, "feeds into the patriarchal construct of consent and conduct of women".

- Consensual sexual intercourse is very often used as defence by accused in cases of rape — and with such an explanation inserted into the law, proving rape will be impossible.
- Section 12 of The Special Courts and Machinery for the Implementation of Shakti Act, 2020, will punish the filing of false complaints.
- This perpetuates the patriarchal notions of viewing women with suspicion, as unworthy of being believed" — and will deter victims from reporting sexual offences.
- It is being argued that existing laws cover offences like intimidation of women through electronic media or punishment for public servants who fail to assist investigation. But these, are nugatory, and effective only in making a political statement.
- The reason for opposition to speedy delivery of justice — 15 days for investigation and one month for trial is being made as it is felt this time-frame will not be sufficient for gathering all evidence — and will become an excuse for police to not conduct a proper investigation.
- Also, a hurried investigation and trial, is likely to lead to miscarriage of justice.
- Neither the police nor the Courts have the infrastructure to comply with these time frames and the same will only result in unfair trials and more acquittals.

3.18.New Tribunal for Krishna Water Sharing Between Andhra, Telangana

- Context: Centre is considering setting up a new tribunal to decide the sharing of Krishna river water between Telangana and Andhra Pradesh.
- Alternatively, the Centre will refer the matter to the existing second Krishna Water Disputes Tribunal (KWDT-II), after obtaining legal opinion.
- The KWDT-II, headed by Justice Brijesh Kumar, in its judgment on December 30, 2010, allocated a total share of 1,001 tmc ft (thousand million cubic feet) to Andhra Pradesh, 911 tmc ft to Karnataka and 666 tmc ft to Maharashtra in Krishna river water.
- However, after the bifurcation of the combined state of Andhra Pradesh in June 2014, Telangana has been demanding revised allocation of Krishna water to the two Telugu states since they were separated.
- The Centre referred the matter to KWDT-II again under Section 89 of the AP Reorganisation Act, 2014, asking for project-wise allocation of the Krishna water, but the tribunal did not take it up, on the ground that its terms of reference did not permit the same.
- Telangana chief minister in his letter to the Centre on October 2 this year requested that the matter be referred to a new tribunal or again to KWDT-II under Inter-State River Water Disputes Act of 1956 so that fresh allocations are made to the two states.
- The publication of KWDT-II award given in 2010 was stayed by the Supreme Court in 2011 based on a petition by filed the then combined Andhra Pradesh government and after bifurcation of the state, Telangana, too, impleaded in it.

- Telangana had gone to Supreme Court in 2015 seeking setting up of a new tribunal or re-mandate KWDT-II under Section-3 of the ISRWD-1956 for reallocation of water between the two Telugu states.
- This matter is still pending in SC and so, the matter being sub-Judice, the Centre can act only after hearing from SC.
- But now, Telangana has agreed to withdraw its petition in the SC and therefore, the Centre will consider establishment of a new tribunal or alternatively refer the matter to the KWDT-II, after obtaining legal opinion.
- On the complaint lodged by the Telangana government over the alleged unauthorised expansion of Pothireddypadu Head Regulator project and construction of Rayalaseema lift irrigation scheme on Krishna river in the backwaters of Srisailam reservoir by Andhra Pradesh government, center has said any new project on the river would not be allowed.
- Andhra government has been directed not to go ahead with the Pothireddypadu or Rayalaseema lift projects until they were technically appraised and cleared by Central Water Commission and sanctioned by the apex council.
- The expansion of Kaleshwaram lift irrigation scheme on Godavari river by the Telangana government seeking to draw another three tmc ft water per day from the river was also unauthorised and should not be taken up.
- As per the agreement at the apex council meeting held on October 6, both the states should submit detailed project reports (DPRs) of new projects to the respective boards on Krishna and Godavari rivers immediately for appraisal and subsequent sanction by the apex council.

What is the Krishna river dispute, and what has been done to resolve it?

- The Krishna is an east-flowing river that originates at Mahabaleshwar in Maharashtra and merges with the Bay of Bengal, flowing through Maharashtra, Karnataka, Telangana and Andhra Pradesh.
- Together with its tributaries, it forms a vast basin that covers 33% of the total area of the four states.
- A dispute over the sharing of Krishna waters has been ongoing for many decades, beginning with the erstwhile Hyderabad and Mysore states, and later continuing between successors Maharashtra, Karnataka and Andhra Pradesh.
- In 1969, the Krishna Water Disputes Tribunal (KWDT) was set up under the Inter-State River Water Dispute Act, 1956, and presented its report in 1973.
- The report, which was published in 1976, divided the 2060 TMC (thousand million cubic feet) of Krishna water at 75 per cent dependability into three parts: 560 TMC for Maharashtra, 700 TMC for Karnataka and 800 TMC for Andhra Pradesh.
- At the same time, it was stipulated that the KWDT order may be reviewed or revised by a competent authority or tribunal any time after May 31, 2000.
- Afterward, as new grievances arose between the states, the second KWDT was instituted in 2004.
- It delivered its report in 2010, which made allocations of the Krishna water at 65 per cent dependability and for surplus flows as follows: 81 TMC for Maharashtra, 177 TMC for Karnataka, and 190 TMC for Andhra Pradesh.

After the KWDT's 2010 report

- Soon after the 2010 report was presented, Andhra Pradesh challenged it through a Special Leave Petition before the Supreme Court in 2011.
- In an order in the same year, the apex court stopped the Centre from publishing it in the official Gazette.
- In 2013, the KWDT issued a 'further report', which was again challenged by Andhra Pradesh in the Supreme Court in 2014.
- After the creation of Telangana from Andhra Pradesh in 2014, the Water Resources Ministry has been extending the duration of the KWDT.
- Andhra Pradesh has since asked that Telangana be included as a separate party at the KWDT and that the allocation of Krishna waters be reworked among four states, instead of three.
- It is relying on Section 89 of The Andhra Pradesh State Reorganisation Act, 2014, which reads:
- "89. The term of the Krishna Water Disputes Tribunal shall be extended with the following terms of reference, namely:
  - ✓ shall make project-wise specific allocation, if such allocation has not been made by a Tribunal constituted under the Inter-State River Water Disputes Act, 1956;
  - ✓ shall determine an operational protocol for project-wise release of water in the event of deficit flows.
- For the purposes of this section, it is clarified that the project-specific awards already made by the Tribunal on or before the appointed day shall be binding on the successor States.
- Maharashtra and Karnataka are now resisting this move.
- On September 3, the two states said: "Telangana was created following bifurcation of Andhra Pradesh. Therefore, allocation of water should be from Andhra Pradesh's share which was approved by the tribunal.

3.19.World Bank approves four India projects

- Context: The projects that have been approved are: Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project (CHIRAAG); Nagaland: Enhancing Classroom Teaching and Resources Project; and Second Dam Improvement and Rehabilitation Project (DRIP-2).
- The projects support a range of development initiatives – strengthening India's social protection architecture, promoting nutrition-supportive agriculture for tribal households in Chhattisgarh, enhancing quality education in Nagaland and improving the safety and performance of existing dams across various states in India.
- The US $400 million Second Accelerating India's COVID-19 Social Protection Response Programme project will support India's efforts at providing social assistance to the poor and vulnerable households, severely impacted by the COVID-19 pandemic.
- This is the second operation in a programmatic series of two.
- The first operation of US $750 million was approved in May 2020.

- It enabled immediate cash transfers to about 320 million individual bank accounts identified through pre-existing national social protection schemes under the Pradhan Mantri Garib Kalyan Yojana (PMGKY) and additional food rations for about 800 million individuals.
- The second operation will complement the expansion of India's safety net programmes to create a portable social protection platform ensuring food and cash support for poor households, urban migrants, and unorganised sector workers across state boundaries
- The US $250 million Second Dam Improvement and Rehabilitation Project (DRIP-2) will improve the safety and performance of existing dams across various states of India and will strengthen dam safety by building dam safety guidelines; bring in global experience; and introduce newer technologies.
- Nagaland: Enhancing Classroom Teaching and Resources Project (US $68 million) will improve classroom instruction; create opportunities for the professional development of teachers; and build technology systems to provide students and teachers with more access to blended and online learning as well as allow better monitoring of policies and programs.
- CHIRAAG project will develop sustainable production systems that allow tribal households in remote areas of Chhattisgarh to practice round-the-year production of diversified and nutritious food.
- It will be implemented in the southern tribal-majority region of the state where a large population is undernourished and poor.
- The project will benefit over 180,000 households from about 1,000 villages in eight districts of Chhattisgarh, it added.

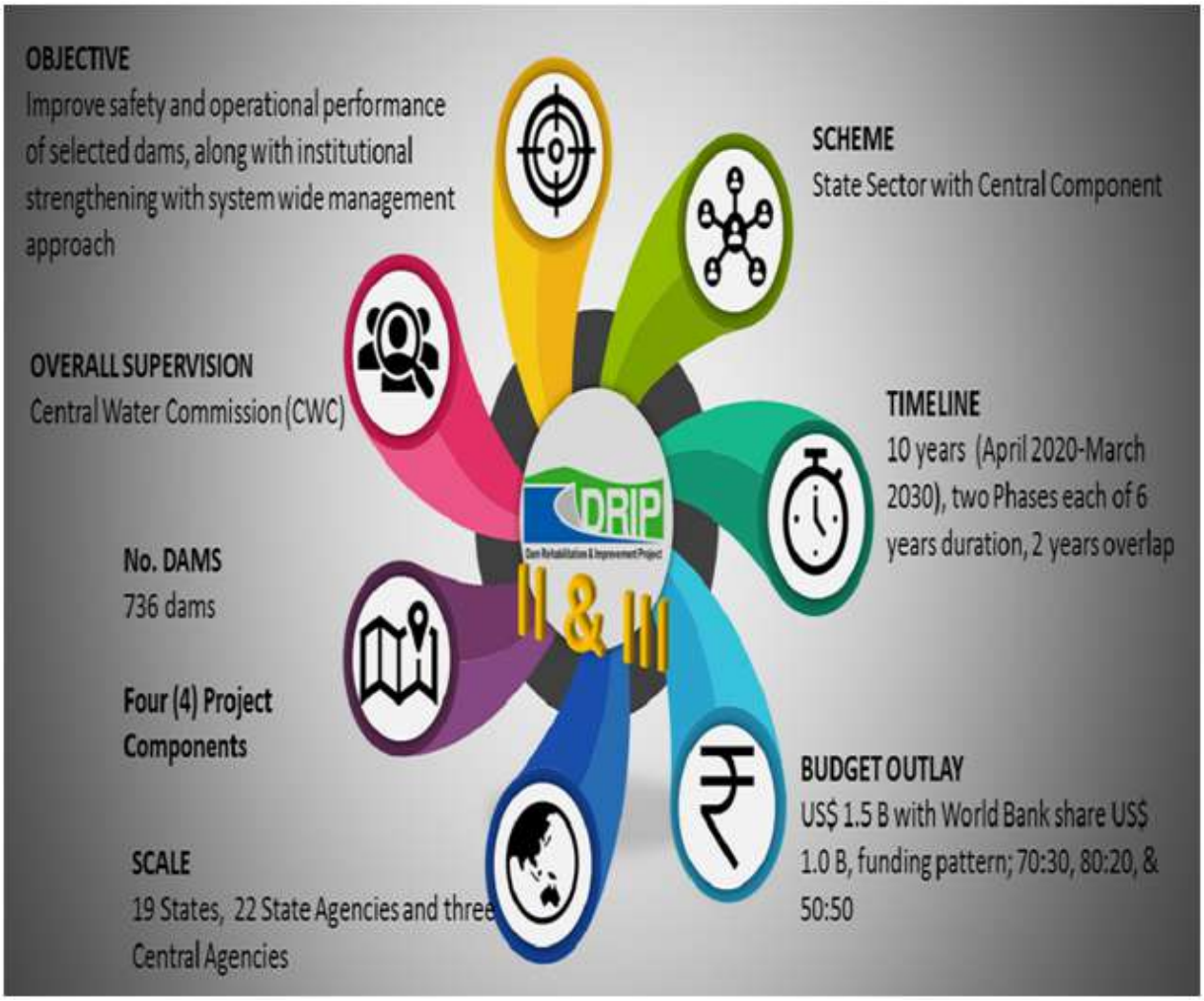
3.20.Morocco-Israel deal

- Context: Morocco has become the fourth Arab country to normalise ties with Israel in five months.
- US announced a series of normalisation agreements between Arab countries (the UAE, Bahrain, Sudan and now Morocco) and Israel bringing peace to West Asia.
- In return for Morocco's decision to establish formal ties with Israel, the U.S. has recognised Moroccan sovereignty over Western Sahara, a disputed territory in northwestern Africa, which has been under Moroccan control for decades.

- Morocco has long been campaigning internationally, using economic pressure and diplomacy, for recognition of its claims to Western Sahara.

What is the dispute?

- This large, arid and sparsely populated region that shares a border with Morocco, Algeria and Mauritania and has a long Atlantic coast was a Spanish colony.
- The region is home to the Sahrawi tribe.
- In the 1970s, when international and local pressure mounted on Spain to vacate its colonies in Africa, Libya and Algeria helped found a Sahrawi insurgency group against the Spanish rule in Western Sahara.
- The Popular Front for the Liberation of Saguia el Hamra and Rio de Oro, known as the Polisario Front, started guerilla warfare against Spanish colonialists.
- In 1975, as part of the Madrid Accords with Morocco and Mauritania, Spain decided to leave the region, which was then called Spanish Sahara.
- According to the accords, Spain would exit the territory before February 28, 1976 and until then, the Spanish Governor General would administer the territory, with help from two Moroccan and Mauritanian Deputy Governors.
- The Polisario Front and Algeria opposed the agreements.
- Both Morocco and Mauritania moved troops to Western Sahara to assert their claims.



- Polisario, backed by Algeria, continued the guerilla resistance, demanding their withdrawal.
- On February 27, 1976, a day before Spain ended its presence, the Polisario Front declared the Sahrawi Arab Democratic Republic (SADR) in Western Sahara.
- The SADR has been recognised by several African countries and is a member of the African Union.

What is Morocco's claim?

- Morocco and Mauritania had laid claims to Western Sahara even when it was a Spanish colony.
- In 1974, the International Court of Justice was asked by the U.N. General Assembly to look into the legal ties, if any, that existed between Western Sahara and Morocco and Mauritania at the time of its colonisation by Spain in the 19th century.
- The court found no evidence "of any ties of territorial sovereignty" between the Western Sahara and either Morocco or Mauritania, but stated that there were "indications" that some tribes in the territory were loyal to the Moroccan Sultan.
- In its conclusion, the court endorsed the General Assembly Resolution 1541 that affirmed that to ensure decolonisation, complete compliance with the principle of self-determination is required.
- But King Hassan II of Morocco hailed the court's opinion as a vindication of Rabat's claims and moved troops across the northern border to Western Sahara.
- Mauritania joined in later.
- It set the stage for a three-way fight with the Polisario Front resisting both countries.

What's the current status of the conflict?

- The three-way conflict lasted for almost four years.
- In August 1979, Mauritania signed a peace treaty with Polisario, bringing the country's military involvement in Western Sahara to an end.
- When Mauritanian forces withdrew from the southern part of the desert that they had occupied, Morocco swiftly advanced troops.
- The war continued between Moroccan troops and the Polisario Front.
- In 1991, when a ceasefire was finally achieved, upon the promise of holding an independence referendum in Western Sahara, Morocco had taken control of about 80% of the territory.
- The war had forced almost 200,000 Sahrawis to flee the territory to neighbouring Algeria, where Polisario is running squalid refugee camps.
- The SADR is operating largely from the eastern flank of Western Sahara and the refugee camps.
- Moroccan troops have built a huge sand wall called Berm, from the Atlantic coast of Western Sahara to the mountains of Morocco, dividing the territories they control from that of Polisario.
- "It's Africa's last colony", according to Polisario fighters.

What impact will the Israel deal have on the conflict?

- The normalisation deal between Morocco and Israel itself will not have any direct bearing on Western Sahara.

- But the concession the U.S. has given to Morocco — Washington's recognition of Moroccan occupation of Western Sahara in return for Rabat's agreement with Israel — could flare up the conflict.
- The independence referendum, promised in the 1991 ceasefire, is yet to take place.
- Last month, Morocco launched an offensive into the U.N.-controlled buffer zone between the two sides and in return, Polisario said it would resume armed conflict.
- After the US' recognition of Morocco's claim, Polisario said it would continue fighting until Moroccan troops are forced to withdraw.
- The U.S. move would upset Algeria, the biggest backer of Polisario.
- Among the countries that condemned the U.S. decision is Russia, which said the recognition of Moroccan sovereignty over Western Sahara "is a violation of international law".

4. Economy

Click on the links given below to watch the following questions on YouTube

here

here

here

4.1.Centre's GST compensation formula

- The Central government has set up a special borrowing window for the states and union territories who choose Option-1 to borrow the amount of shortfall arising out of GST implementation.

What is the GST compensation?

- The Constitution (One Hundred and First Amendment) Act, 2016, introduced national Goods and Services Tax (GST) in India from 1 July 2017.
- This law provided to compensate the States for loss of revenue arising out of implementation of the GST.
- The adoption of the GST was made possible by the States ceding almost all their powers to impose local-level indirect taxes and agreeing to let the prevailing multiplicity of imposts be subsumed under the GST.
- While the States would receive the SGST (State GST) component of the GST, and a share of the IGST (Integrated GST), it was agreed that revenue shortfalls arising from the transition to the new indirect taxes regime would be made good from a pooled GST Compensation Fund for a period of five years that is set to end in 2022.
- This corpus in turn is funded through a compensation cess that is levied on so-called 'demerit' goods.
- The computation of the shortfall — is spelt out in Section 7 of the GST (Compensation to States) Act, 2017 — is done annually by projecting a revenue assumption based on 14% compounded growth from the base year's (2015-2016) revenue and calculating the difference between that figure and the actual GST collections in that year.
- For the 2020-21 fiscal year, the revenue shortfall has been anticipated at ₹3 lakh crore, with the Compensation Fund expected to have only about ₹65,000 crore through cess accruals and balance to pay the compensation to the States.

How are the borrowing options supposed to work?

- The Union government proposed that the States borrow directly from the market by issuing debt under a special window coordinated by the Ministry of Finance.
- The Centre has also contended that of the projected shortfall of about ₹2.35 lakh crore, only ₹97,000 crore is the deficit arising out of GST implementation, with the balance ₹1.38 lakh crore attributable to an 'act of God' (the COVID-19 pandemic) that is independent of implementation of the new indirect tax regime.
- Option 1 entails the States selling debt securities in the market to raise the ₹97,000 crore.

- The Centre will "endeavour" to keep the interest cost on these borrowings "at or close to" the yield on G-Sec (bonds issued by the Government of India), and in the event of the cost being higher, bear a part of the difference through a subsidy.
- This additional borrowing by the States will not be accounted for as a part of the State's debt for purposes of its overall debt calculation, and the repayment of the principal and interest on these borrowings will be done from the Compensation Fund by extending the period of cess collections beyond 2022.
- Under Option 2, the States can sell debt in the market to raise the entire ₹2.35 lakh crore shortfall but with the terms of the borrowing being far less favourable.
- Crucially, here the interest cost would have to be borne by them with only the principal being serviced by the Compensation Fund.
- Now all the 28 states and three union territories with legislature have decided to go for the Centre-suggested compensation formula to meet the revenue shortfall arising out of the GST implementation.

- Jharkhand, the only remaining state, has now communicated its acceptance of Option-1 given by the Centre.
- The Central government has set up a special borrowing window for the states and union territories who choose Option-1 to borrow the amount of shortfall arising out of GST implementation.
- The window has been operationalised since October 23 and the Centre has already borrowed an amount of ₹30,000 crore on behalf of the states in five instalments and passed it on to the ones who chose Option-1.
- Now Jharkhand will also receive funds raised through this window starting from the next round of borrowing.
- The next instalment of ₹6,000 crore will be released on December 7.
- Under the terms of Option-1, besides getting the facility of a special window for borrowings to meet the shortfall arising out of GST implementation, the states are also entitled to get unconditional permission to borrow the final instalment of 0.50 per cent of Gross State Domestic Product (GSDP)

out of the 2 per cent additional borrowings permitted by the Centre under the AtmaNirbhar Abhiyaan on May 17 ,2020.

- This is over and above the Special Window of ₹1.1 lakh crore.
- On receipt of the choice of Option-1, the Centre has granted additional borrowing permission of ₹ 1,765 crore to Jharkhand (0.50 per cent of the state's GSDP).

4.2.Niti Aayog recommends single self-regulatory body for Online Fantasy Sports

Fantasy Sport

- Fans choose from real players in an online selection process, or a draft, to assemble a fantasy team.
- The players' real-game statistics are compiled and compared to see whose fantasy team has done the best.
- Players track how their fantasy team is doing using various web sites or mobile apps.
- Some players join leagues with friends and compete against only people they know.
- Others join public leagues hosted by web sites and compete against strangers.
- Niti Aayog,has recommended the setting up of a single self-regulatory body for online fantasy sports (OFS) in India.

- The recommendation was made through a draft report titled “Guiding Principles for the Uniform National-Level Regulation of Online Fantasy Sports Platforms in India", saying the body should be recognized by the government.
- The report comes as big support for online fantasy sports platforms which have been embroiled in battles over their legality in various states.
- NITI Aayog has initiated this discussion to examine the fantasy sports industry structure and consider evolving guiding principles that can help the industry to grow by adhering to guidelines which are consistent and based on well-recognised principles.
- Fantasy sports industry in the United States (US) was the largest in the works, till the Indian industry overtook it “recently".
- Such a self-regulatory body should be a single-purpose fantasy sports industry body and have membership of online fantasy sports platforms (OFSPs) operators.
- The regulation for OFS platforms varies across states in the country, which results in “inconsistent experience" and “risk of forum/jurisdiction shopping.
- Online fantasy sports in India have drawn over Rs. 1500 crore in investments from foreign investors over the past few years, it’s legality is often called into question still.

- Some states, like Assam, Orissa and Telangana, have made fantasy sports illegal within their borders, while, Tamil Nadu recently passed an ordinance that bans “online gaming" in the state, but doesn’t explicitly mention fantasy sports platforms.
- Nagaland has explicitly recognized fantasy sports as games of skill, while Sikkim has a special license that real money gaming platforms can acquire to function in the state.
- Similarly, the Punjab & Haryana and Rajasthan High Courts have specifically passed rulings that recognize fantasy sports as games of skill, though none of these legally qualify as a countrywide law and the Supreme Court is yet to give its opinion on the matter.

4.3.RBI tightens oversight of NBFCs, UCBs

- The Reserve Bank of India (RBI) announced the introduction of risk-based internal audit norms for large urban cooperative banks (UCBs) and non-banking financial companies (NBFCs), as part of measures aimed at improving governance and assurance functions at supervised entities.
- The RBI also moved to harmonise the guidelines on appointment of statutory auditors for commercial banks, UCBs and NBFCs in order to improve the quality of financial reporting.

Systemic risk potential

- It is felt that a scale-based regulatory approach linked to the systemic risk contribution of NBFCs could be the way forward.
- With a view to deepening financial markets, regional rural banks would be allowed to access the liquidity adjustment facility (LAF) and marginal standing facility (MSF) of the RBI, as also the call/ notice money market.

Secure digital payments

- To significantly improve the ecosystem of digital payment channels RBI has proposed to issue Digital Payment Security Controls directions for the regulated entities.
- These directions will contain requirements for robust governance, implementation and monitoring of certain minimum standards on common security controls for channels like Internet and mobile banking and card payments.

- The UCBs in India are under dual regulation, by the Reserve Bank of India (RBI) and the Registrar of Cooperative Societies (RCS).
- The RBI issues licenses, stipulates prudential norms, Cash Reserve and Statutory Liquidity Ratios, capital adequacy norms and so on.
- The RCS is responsible for election of the management and other administrative matters.
- Members of UCBs democratically elect the board of directors based on the principle of one member one vote.
- The borrowers and not the depositors are the members of UCBs.

- Hence, very often, the election of directors is marred by conflict of interest
- There are also a lot of vested political interests in the administration of these banks.

4.4.FinMin proposes DFI tag for IIFCL to support long term financial needs

- The finance ministry has proposed giving the 'development finance institution' (DFI) tag to India Infrastructure Finance Company Limited (IIFCL) in a bid to support long-term financial needs of infrastructure projects.
- The proposal being discussed will require the approval of Parliament as a Bill.
- IIFCL is a government-owned entity, which is registered as a non-deposit accepting loan company with the Reserve Bank of India.
- The firm, set up in 2006, is the only state-owned financial institution that lends to all the infrastructure sub-sectors.
- The move to convert IIFCL into a DFI is expected to reduce the cost of borrowings for long-term infrastructure projects, at a time when the government has planned Rs 111 trillion worth of infrastructure investments under the National Infrastructure Pipeline during 2020-25.
- FCI was the first DFI to be set up in India back in 1948, which is now classified as a systemically important non-banking financial company.
- Banks began lending to infrastructure firms in the past two decades, edging out DFIs, which became unviable.
- In the past years, ICICI and IDBI, which started as DFIs, were converted into banks, while sector-specific DFIs still exist – Export Import Bank of India, National Bank for Agriculture and Rural Development, and Small Industries Development Bank of India to name a few. But these DFIs focus on non-infrastructure sectors.

TOP 5 SECTORS TO WHICH IIFCL LENDS
Amount sanctioned

	₹ cr*
Road	42,098
Power	36,310
Ports	4,157
Urban infrastructure	3,807
Airport	2,530
Cumulative sanction	90,050

*Direct lending route; till March 2020; Note: All sectors are not included in the list, so cumulative sanction may not add up
Source: IIFCL

- Last year, the government approved additional equity support to the tune of Rs 15,000 crore in IIFCL, of which Rs 5,300 crore has already been infused through recapitalisation bonds in March 2020.

4.5.Dedicated Freight Corridor: 40% DFC track to be completed by 2021

- The Dedicated Freight Corridor Corporation of India Limited (DFCCIL), responsible for developing the DFC project, recently announced that Indian Railways will be operating its freight trains on 40 per cent of the corridor by next year.

- The freight corridor project is one of the largest railway infrastructure projects and is being implemented at a cost of ₹ 81,459 crore.
- The Western DFC project, which will be 1,504 km long will stretch from J N Port in Mumbai to Dadri in Uttar Pradesh.
- Whereas, the 1,856 km long Eastern DFC will stretch from Sahnewal in Punjab to Dankuni in West Bengal.
- The operational route which will complete by 2021 will provide a significant boost to the region's industrial growth.
- Along with this, most of the sections will be commissioned by March 2022 and the remaining part of the Eastern and Western DFC will get commissioned by June 2022.
- Once the Dadri-Rewari section of the DFC is completed, the roll-on roll-off (Ro-Ro) services of Indian Railways will begin
- The Ro-Ro services will contribute to a significant reduction in pollution in the national capital region (NCR). The service will reduce carbon emission and congestion on roads in Delhi.
- Apart from Eastern and Western DFC, three more corridors namely, East Coast East-West, and North-South Sub-Corridor are also set for implementation.
- The surveys for these corridors will be completed by 2021.
- These new corridors are targeted for completion by 2030
- Dedicated Freight Corridors (DFC) is a high speed and high capacity railway corridor that is exclusively meant for the transportation of freight or in other words goods and commodities.
- DFC involves the seamless integration of better infrastructure and state of the art technology.
- This article shares the economic benefits of the Dedicated Freight Corridor and the Public Sector Undertaking (PSU) established in 2006 to oversee its development.
- Dedicated Freight Corridor Corporation of India Ltd (DFCCIL) – Introduction:
- It is headquartered in New Delhi and is a Public Sector Undertaking (PSU).
- It is a business establishment operated by the Railways Ministry of the Government of India.
- It engages in the planning and development, deployment of monetary resources, building, upkeep, and the operation of the DFCs.
- The organisation was incorporated under the Companies Act, 1956 on 30th October 2006.
- DFCCIL has been assigned the status of 'special purpose vehicle' by the Indian government.

4.6.ADB, India sign $50-million loan to boost Bengal's financial management reforms

- The Asian Development Bank (ADB) and the Central government have signed a $50-million policy-based loan to improve financial management procedures and operational efficiencies aimed at achieving more fiscal savings, promote informed decision-making, and improve service delivery in

West Bengal.

- The integration of the State's financial and information systems through the programme's whole-of-government approach will help improve delivery of public services and generate fiscal savings that could help the state augment growth-enhancing development financing.
- The programme will ensure streamlining of social protection benefits like pension and provident fund, facilitate gender-disaggregated data, tax payments, and revenue collection.
- Development projects could be better tracked and monitored with the help of a new module within the integrated financial management system leading to improved project management.

Public finance reform

- A centre for fiscal policy and public finance will be established to deepen capacity of the State government officials on public finance management while developing a web-based grievance redress system for transport corporations and urban local bodies will provide a credible citizen-government interface.
- The loan builds up on past ADB policy-based programmes in 2012 and 2017, supporting the Government of West Bengal on sustainable public financial management reforms.
- These programmes helped develop and implement an IFMS, established successful e-Governance systems for improved revenue administration, undertook measures for expenditure rationalisation, and promoted the private sector's involvement in service delivery.
- The loan is proposed to be supplemented by a $3,50,000-technical assistance grant for capacity building, monitoring of IFMS reforms, and strengthening the integration of social and gender aspects in reform areas.

Asian Development Bank (ADB)

- The Asian Development Bank (ADB) is a regional development bank established on 19 December 1966.
- ADB is headquartered in Manila, Philippines. It aims to promote social and economic development in Asia.
- ADB now has 67 members, of which 48 are from within Asia and the Pacific and 19 outside.
- Japan holds the largest proportion of shares in ADB followed by the USA.

4.7.Supreme Court upholds imposition of GST on lotteries, betting and gambling

- Context: SC upheld Goods and Service Tax (GST) shall be imposed on the sale of lotteries, betting and gambling.
- The SC upheld the notification issued under the Central Goods and Services Tax Act, 2017 wherein the lottery and gambling have been brought under the GST.
- SC dismissed the plea filed by Skill Lotto solutions which sought to declare the levy of GST on lottery as discriminatory and in violation to the provisions of the constitution of India.

- The order was passed in a batch of pleas filed by various lottery dealers which argued that Central government had wrongfully classified lottery as “goods".
- The plea added that the lottery are pieces of paper and devoid of any value.
- The petitioners highlighted the alleged discriminatory practice wherein there is an imposition of 12% GST on lotteries sold within the same State and 28% GST for sale of tickets from other States.
- The Supreme Court held that the levy of Goods and Services Tax (GST) on lotteries, betting and gambling does not amount to hostile discrimination and is not violative of right to equality under the Constitution.
- Definition of goods under Section 2(52) of the Act does not violate any constitutional provision nor is it in conflict with the definition of goods given under Article 366 (12).
- Article 366 clause (12) as observed contains an inclusive definition and the definition given in Section 2(52) of Act, 2017 is not in conflict with definition given in Article 366(12).

4.8.RBI allows RRBs to access LAF, MSF windows

- Context: The Reserve Bank of India (RBI) allowed regional rural banks (RRBs) to access the liquidity adjustment facility (LAF), marginal standing facility (MSF) and call or notice money market, aimed at facilitating better liquidity management for these lenders.
- At present, RRBs are not permitted to access the liquidity windows of the RBI as well as the call or notice market.
- Marginal Standing Facility (MSF) is the rate at which the banks are able to borrow overnight funds from RBI.
- It has also been decided to permit the RRBs to participate in the Call/Notice money market, both as borrowers and lenders.
- RBI has assured markets of continued liquidity support while maintaining orderly market conditions. Revision in the On Tap TLTRO scheme and allowing RRBs to participate in LAF are steps that affirm RBI commitment in this direction.
- In addition, RBI proposed to bring the 26 stressed sectors identified by the Kamath Committee within the ambit of sectors eligible under on tap TLTRO.

- This is in addition to the five sectors announced under the scheme on October 21, 2020.
- The RBI today left the policy repo rate unchanged at 4 per cent.

Chart 6. *Summary of the National Strategy to Combat Money Laundering and the Financing of Terrorism*

Source: Financial Action Task Force (2012b).

4.9.FATF

- The Financial Action Task Force (FATF) annual joint experts' meet was held recently.
- FATF has apprised about 400 experts from both the public and private sectors of the latest risk findings related to money laundering and terror funding.
- It was attended by participants from various government agencies all over the world and international bodies such as the United Nations, the International Monetary Fund, the World Bank and Interpol etc.
- It emphasized on the importance of effective information sharing, which is one of the cornerstones of a well-functioning AML/CFT [Anti-Money Laundering/Combating the Financing of Terrorism] framework.
- Exchange of ideas on issues such as financing of ethnically or radically motivated terrorism, their transnational links, environmental crime, illegal arms trafficking and terror financing, and digital transformation took place
- The experts presented the international legal framework on preventing access of terrorists to arms and provisions covering illegal arms trafficking.

- Participants also focused on the linkages between illicit arms trafficking and terrorist financing and the need for national risk assessments to address these risks.
- Experiences of using advanced analytics, such as text mining, privacy preserving technology, online analytical processing and social network analysis in the fight against money laundering and terrorist financing, were also shared.
- The Financial Action Task Force (FATF) is an inter-governmental body established in 1989 during the G7 Summit in Paris.
- The objectives of the FATF are to set standards and promote effective implementation of legal, regulatory and operational measures for combating money laundering, terrorist financing and other related threats to the integrity of the international financial system.
- Its Secretariat is located at the Organisation for Economic Cooperation and Development(OECD) headquarters in Paris.
- It consists of thirty-seven member jurisdictions.
- FATF has two lists:
  - ✓ Grey List: Countries that are considered safe haven for supporting terror funding and money laundering are put in the FATF grey list. This inclusion serves as a warning to the country that it may enter the blacklist.
  - ✓ Black List: Countries known as Non-Cooperative Countries or Territories (NCCTs) are put in the blacklist. These countries support terror funding and money laundering activities. The FATF revises the blacklist regularly, adding or deleting entries.
- The FATF Plenary is the decision making body of the FATF. It meets three times per year.

4.10.Famers protesting

- Context: Farmer protests against the three new agriculture-related laws have gathered momentum. The farmers have strongly come out in protest of recently passed:
  - ✓ 'Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020'
  - ✓ Farmers (Empowerment and Protection) Agreement of Price Assurance and Farm Services Bill, 2020' and
  - ✓ oEssential Commodities (Amendment) Bill 2020.
- This set of three laws passed in September aims to deregulate India's agriculture sector.
  - ✓ The government says these laws will "liberate" farmers from the tyranny of middlemen.
  - ✓ But many farmers fear that they stand to lose more than they could gain from the new regulations and that the main beneficiaries will be agricultural corporations with gargantuan financial firepower.

So what do India's new farm laws do?

- They make it easier for farmers to bypass government-regulated markets (known locally as mandis) and sell produce directly to private buyers.

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- They can now enter into contracts with private companies, a practice known in India as contract farming, and sell across state borders.
- The new regulations also allow traders to stockpile food.
- This is a shift away from prohibitions against hoarding, which could make it easier for traders to take advantage of rising prices, such as during a pandemic. Such practices were criminal offences under the old rules.

Farmers point of view

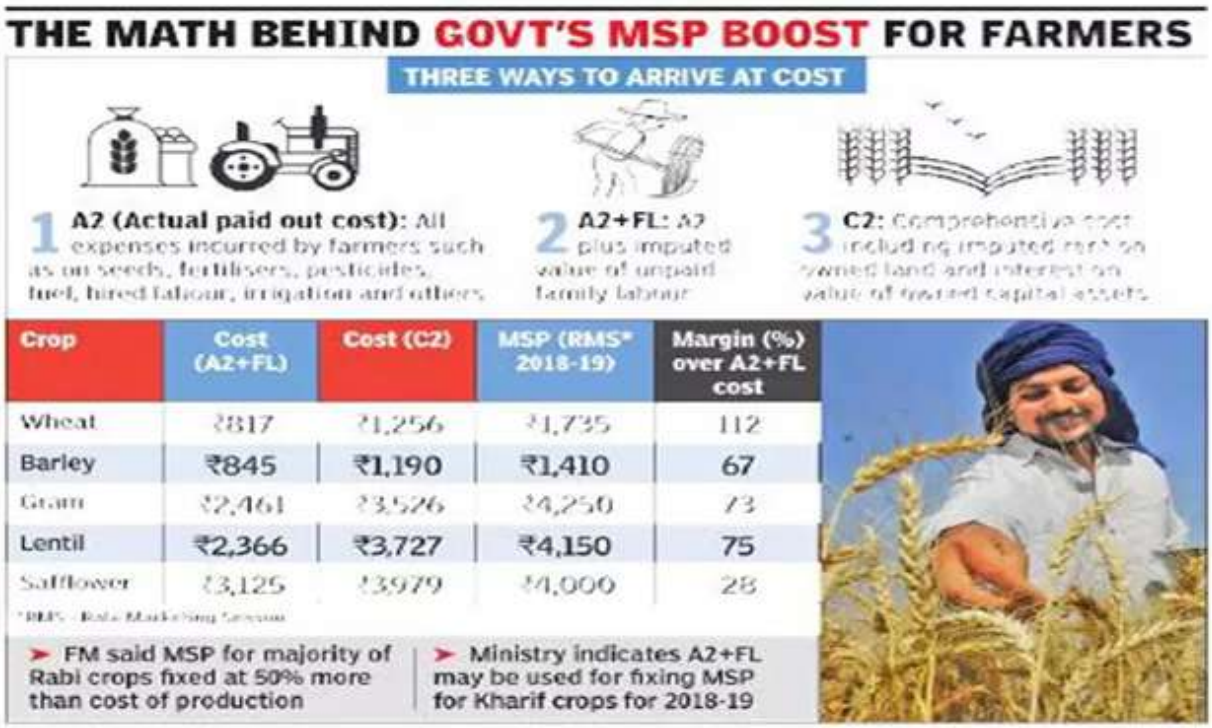
- More than 86 percent of India's cultivated farmland is controlled by smallholder farmers who own less than two hectares (five acres) of land each.
- The new rules remove many of their safeguards.
- Small farmers fear that they just do not have enough bargaining power to get the kinds of prices they need for a decent standard of living when they negotiate to sell their produce to larger companies.
- The new laws also do not make written contracts mandatory.
- So in the case of any violation of their terms, it can be very hard for a farmer to prove that he or she has been aggrieved, giving them little recourse.
- The new rules do not guarantee any minimum price for any product, and farmers worry that the existing MSP will be abolished at some point.
- There is a huge communication failure on the part of the central government to explain to farmers what these laws are, and how they are intended to benefit them.
    - ✓ The confusion about MSP and procurement going away comes from Acts being linked to some previous policy documents like the Shanta Kumar Committee report and the CACP reports suggesting reduced procurement and an end to open-ended procurement from states like Punjab to cut down costs of FCI.
    - ✓ It is feared that FCI itself may start procuring directly from the new trade area to cut down buying costs like market fees and Arhtiya commission.
    - ✓ The changes in the "social contract" between the state's farmers and the Union government that is the root cause of this apprehension.

4.11.Formula for crops' MSP

- Context: The major demand of the protesting farmers has been that the government guarantee in writing the MSP system, which assures them of a fixed price for their crops, 1.5 times of the cost of production.

MSP

- The MSP (minimum support price) assures the farmers of a fixed price for their crops.
- The Commission for Agricultural Costs & Prices (CACP) in the Ministry of Agriculture would recommend MSPs for 23 crops.
    - ✓ The CACP considered various factors while recommending the MSP for a commodity, including cost of cultivation.



- ✓ It also took into account the supply and demand situation for the commodity; market price trends (domestic and global) and parity vis-à-vis other crops; and implications for consumers (inflation), environment (soil and water use) and terms of trade between agriculture and non-agriculture sectors.
- ✓ The Budget for 2018-19 announced that MSPs would henceforth be fixed at 1½ times of the production costs for crops as a "pre-determined principle".
- ✓ The CACP's job now was only to estimate production costs for a season and recommend the MSPs by applying the 1.5-times formula.

Which production costs were taken in fixing the MSPs?

- The CACP's 'Price Policy for Kharif Crops: The Marketing Season 2018-19' report stated that its MSP recommendation was based on 1.5 times the A2+FL costs.
  - ✓ 'A2' covers all paid-out costs directly incurred by the farmer in cash and kind on seeds, fertilisers, pesticides, hired labour, leased-in land, fuel, irrigation, etc.
  - ✓ 'A2+FL' includes A2 plus an imputed value of unpaid family labour. '
- It does not take into account C2 costs.
- 'C2' is a more comprehensive cost that factors in rentals and interest forgone on owned land and fixed capital assets, on top of A2+FL.

Preferential Trade Agreement (PTA)

- PTA or discriminatory trade agreement or regional trade liberalization
- PTA is a trading bloc which gives preferential access to certain products from the participating countries.
- This is done by reducing tariffs, but not by abolishing them completely.
- A PTA can be established through a trade pact.
- It is the first stage of economic integration.
- The line between a PTA and a Free trade area (FTA) may be blurred, as almost any PTA has a main goal of becoming a FTA in accordance with the *General Agreement on Tariffs and Trade*.

THINGS TO KNOW...

- This is Bangladesh's maiden PTA with any country
- Bangladesh will enjoy duty-free benefit on exports of **100** products, Bhutan on **34** products
- PTA allows to raise the number of trading items
- Bangladesh is the second largest trading partner of Bhutan
- Chilahati-Haldibari railway route to start functioning soon to establish railway link with Bhutan

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4.12.Bangladesh signs first Preferential Trade Agreement (PTA) since its independence

- Bangladesh signed its first Preferential Trade Agreement (PTA) with Bhutan allowing duty free access to a range of goods between the two countries.
- This is the first PTA Bangladesh has signed with any country in the world.
- The agreement was signed on the occasion marking the 50 years of diplomatic ties between the two countries.
- In 1971, Bhutan was the first country in the world, followed by India as the second, to recognise Bangladesh as an independent country.
- Under the PTA 100 Bangladeshi products will get duty free access to Bhutan.
- At the same time, 34 items from Bhutan will get duty free access into Bangladesh.
- Further items can be added in the list later on the basis of discussion between the two countries.
- Goods like Jute and Jute products, baby clothes and accessories, men's trousers, jackets and blazers are among the 100 items from Bangladesh which will get duty free access to Bhutan.
- On the other hand fruit juice, natural honey, wheat flour jams, jellies and lime stone, quartzite etc from Bhutan will have duty free access to Bangladesh.
- The trade volume between the two countries is approximately 50 million dollars with 7.56 million of export and 42.09 million import into Bangladesh.
- Bangladesh is expected to sign 11 more PTAs and Free Trade Agreements (FTAs) with countries like Indonesia and Nepal by June next year.

4.13.Invest India wins UN Investment Promotion Award

- The UNCTAD has declared 'Invest India' as winner of the 2020 United Nations Investment Promotion Award
- "Invest India" is the National Investment Promotion and Facilitation Agency of India and act as the first point of reference for investors in India.
- It is a non-profit venture set up in 2009 under the Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry.
- The award recognises and celebrates the outstanding achievements of the World's best-practice investment promotion agencies.
- The evaluation was based on UNCTAD's assessment of work undertaken by 180 national Investment Promotion Agencies across the world.
- UNCTAD reported best practices from investment promotion agencies in the IPA Observer publications in April 2020 and July 2020.
- IPAs response to the pandemic became the basis for the evaluation of the 2020 United Nations Investment Promotion Award.

4.14.Make in India is hitting supply of life-saving medicines

- Context: The Ministry of Railways has written to the Department for Promotion of Industry & Internal Trade, Ministry of Commerce and Industry, seeking exemption for procuring certain medical items manufactured outside India, particularly medicines used in the treatment of COVID-19, cancer, etc.
- As per the Department for Promotion of Industry and Internal Trade's (DPIIT) norms
  - ✓ Class-I is a local supplier or service provider whose goods, services or works offered for procurement have local content equal to or more than 50%
  - ✓ Class-II is a supplier or service provider whose goods, services or works offered for procurement have local content of more than 20% but less than 50%.
  - ✓ Only these two categories of suppliers shall be eligible to bid in the procurement of all goods, services or works and with estimated value of purchases of less than ₹200 crore.

Issue

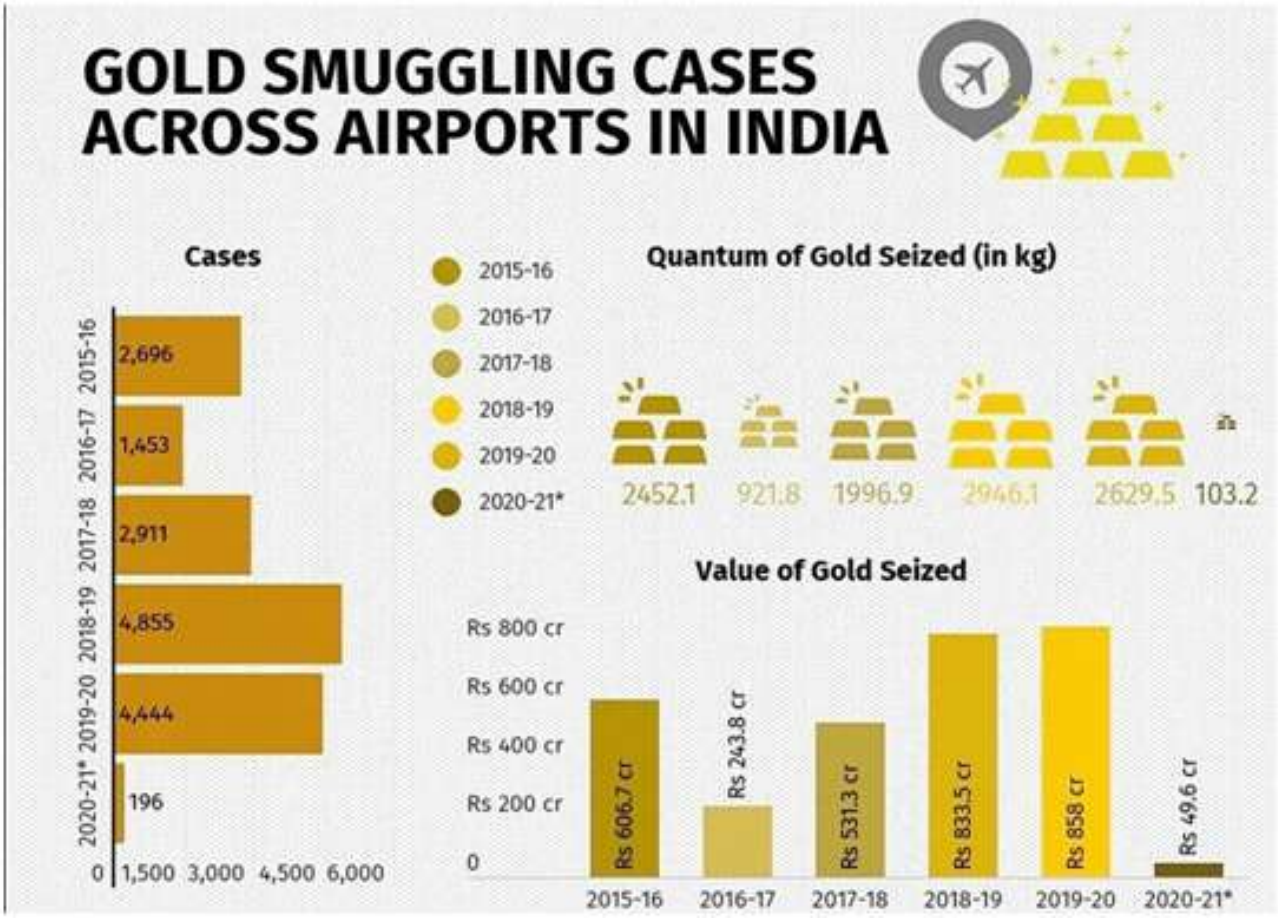
- Northern Railway expressed difficulty in procuring drugs and surgical items in the light of the latest 'Make in India' policy.
- Indian Railways, one of the largest employers in the country with over 12 lakh employees, has its own network of healthcare infrastructure, including super specialty hospitals in all Zonal Headquarters.
- Certain drugs used in cancer treatment were manufactured outside India but available in the Indian market through agents or dealers.
- Besides a surgical implant, the suppliers of anti-viral medicines used for the treatment of COVID-19, and even the vaccine for the coronavirus, may not fall under the Class-I or Class-II categories, which is required for purchases under the new 'Make in India' guidelines.
- The uninterrupted supply chain of these medicines and medical items are essential in the human life saving category and providing satisfactory health care to all railway employees and their family members.
- In the existing 'Make in India' policy, there is no window available to procure such items from the suppliers who may not meet the Local Content Criteria required for Class-I and Class-II Local Supplier category.
- It is therefore proposed to seek exemption to procure such medicines and medical items from Indian Market from 'non-local suppliers.
- DPIIT forwarded the issue to the Department of Pharmaceuticals and Ministry of Health and Family Welfare, being the nodal agency for Pharmaceuticals, Medical Devices and Equipment.
- The DPIIT had also informed that procurement of imported items through Indian agents/ traders amounted to indirect violation of the general finance rules and hence, it was not recommended and advised.

4.15.Government asks private television channels to follow ASCI guidelines on online gaming and fantasy sports

- Context: The Ministry of Information and Broadcasting has issued an advisory asking all private television broadcasters to follow guidelines issued by the Advertising Standards Council of India (ASCI) for advertisements relating to online gaming, fantasy sports etc.
  - ✓ The Ministry has advised that the advertisements should not promote any activity prohibited by statute or law.
  - ✓ The advertisements on Online Gaming, Fantasy Sports, should be in conformity with the Advertising Code laid down under Cable Television Networks (Regulation) Act, 1995 and the Consumer Protection Act, 2019.
  - ✓ The advisory has been issued jointly by I&B Ministry, Ministry of Consumer Affairs, ASCI, News Broadcasters Association, Indian Broadcasting Foundation, All India Gaming Federation, Federation of Indian Fantasy Sports, and the Online Rummy Federation.
  - ✓ ASCI guidelines require that every such gaming advertisement must carry the following disclaimer: 'This game involves an element of financial risk and may be addictive. Please play responsibly and at your own risk".
  - ✓ Such a disclaimer should occupy at least 20% of the advertisement space.
  - ✓ The gaming advertisements cannot depict users under the age of 18 years as engaged in playing a game of "online gaming for real money winnings" or suggest that such users can play these games.
  - ✓ The advertisements should neither suggest that online gaming presents an income generating opportunity as an alternative to employment nor depict a person playing such games is more successful than others.
  - ✓ The Advertising Standards Council of India, established in 1985, is a Mumbai based self-regulatory voluntary organisation of the advertising industry in India.
  - ✓ It seeks to ensure that advertisements conform to its Code for Self-Regulation.
  - ✓ Under the Cable Television Networks (Regulation) Act, 1995 it is mandatory for television networks to follow the advertising code laid down by ASCI.

4.16.Smuggling in India Report 2019-20

- Finance Minister inaugurated the 63rd Founding Day Celebrations of the Directorate of Revenue Intelligence (DRI).
- On the occasion The Smuggling in India Report 2019-20 was released.
- It analyses organised smuggling trends on Gold and Foreign Currency, Narcotic Drugs, Security, Environment and Commercial Frauds.



4.17.Sovereign fund flow: India replaces China as most sought-after destination

- Context: India has quietly replaced China as the most sought-after destination for global sovereign wealth funds investment in the private sector.
- It is a sign of the country's growing attraction for investors.
- The data was released by New York-based Global SWF, which tracks over 400 sovereign wealth funds.
- In the year 2020 to date, these funds deployed capital worth a record $14.8 billion in India, which is nearly three times more than what they have put in China ($4.5 billion).

About Sovereign Wealth Funds

- A sovereign wealth fund (SWF), sovereign investment fund, or social wealth fund is a state-owned investment fund .
- It is comprised of money generated by the government, often derived from a country's surplus reserves. SWFs provide a benefit for a country's economy and its citizens.
- The funding for a SWF can come from a variety of sources like surplus reserves from state-owned natural resource revenues, trade surpluses, bank reserves that may accumulate from budgeting excesses, foreign currency operations, money from privatizations, and governmental transfer payments.

- In general, sovereign wealth funds usually have a targeted purpose.
- Some countries have sovereign wealth funds that can be similar to venture capital for the private sector.
- Similar to any type of investment fund, SWFs have their own objectives, terms, risk tolerances, liability matches, and liquidity concerns.
- Some funds may prefer returns over liquidity and vice versa.
- Depending on the assets and objectives, sovereign wealth funds' risk management can range from very conservative to a high tolerance for risk.

Types of SWFs

- Traditional classifications of sovereign wealth funds include:
  - ✓ Stabilization funds
  - ✓ Savings or future generation funds
  - ✓ Public benefit pension reserve funds
  - ✓ Reserve investment funds
  - ✓ Strategic Development Sovereign Wealth Funds (SDSWF)
  - ✓ Funds targeting specific industries (possibly emerging or distressed)
  - ✓ Foreign currency reserve assets. (Some classifications may not consider these funds as SWFs.) Foreign currency reserve funds are powerful funds that may be used for specific governmental purposes and/or for helping to manage the trading power of a currency globally.

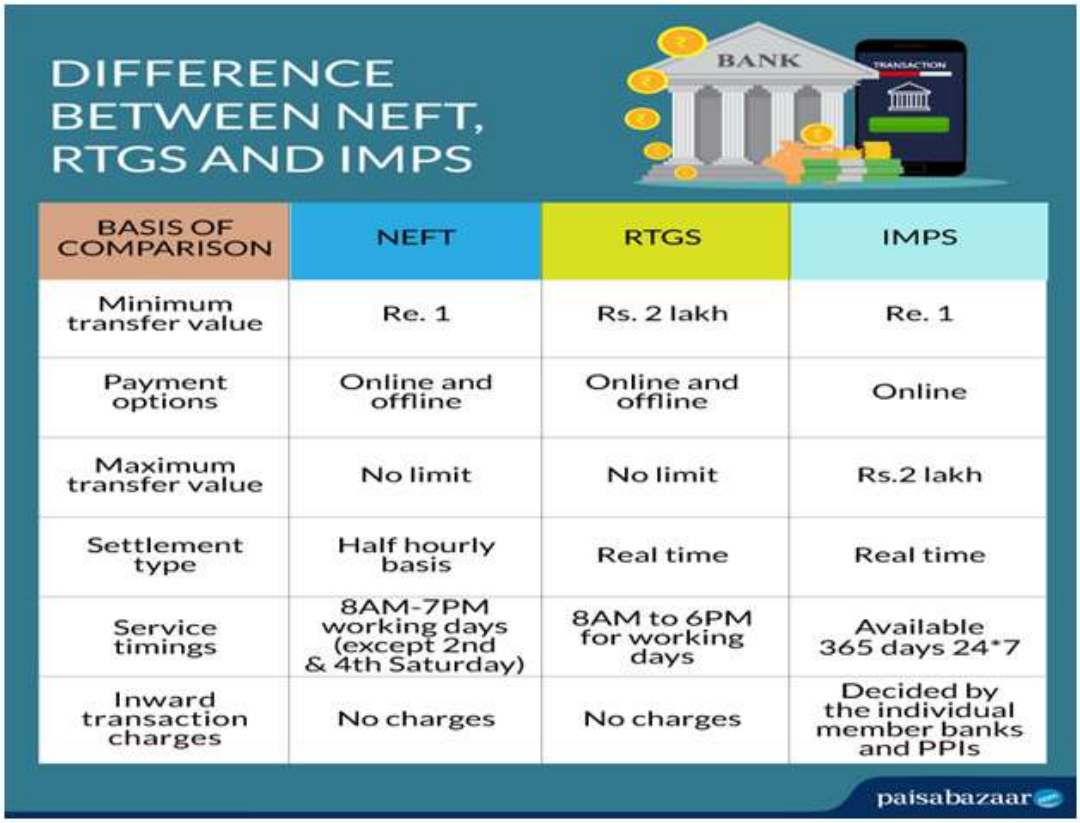
Investment Terms

- The amount of money in a SWF is usually substantial.
- The acceptable investments included in each SWF vary from fund to fund and country to country.
- Countries can create or dissolve SWFs to match the needs of their population.
- Funds with liquidity concerns may limit investments to only very liquid public debt instruments.
- In some cases, sovereign wealth funds will invest directly in domestic industries.
- Liquidity, debt, and allocation balances can be some of the key factors in investment terms.
- There can be a concern that SWFs have a political influence.
- Some of the most significant sovereign wealth funds are not entirely transparent about their investments and corporate governance practices.

4.18.RTGS to be available 24x7 from December 14: RBI

- Context: The Reserve Bank of India (RBI) announced that the money transfer facility, Real Time Gross Settlement System (RTGS), will be available round the clock on all days of the year from December 14, 2020. With this, India will become one of the few countries in the world to operate its RTGS system round the clock throughout the year.

- ✓ Real Time Gross Settlement, RTGS systems are specialist funds transfer systems where the transfer of money or securities takes place from one bank to any other bank on a "real-time" and on a "gross" basis.
- ✓ Settlement in "real time" means a payment transaction is not subjected to any waiting period, with transactions being settled as soon as they are processed.
- ✓ "Gross settlement" means the transaction is settled on a one-to-one basis, without bundling or netting with any other transaction. "Settlement" means that once processed, payments are final and irrevocable.
- ✓ Earlier the transfer facility was available between 7 AM and 6 PM on all working days except for the second and fourth Saturday of the month and on Sundays.
- ✓ RTGS facilitates inter-bank transfer of funds from the account of the remitter in one bank to the account of the beneficiary maintained with any other bank branch.
- ✓ The minimum amount to be remitted through RTGS is Rs 2 lakh with no upper or maximum ceiling.
- ✓ Round the clock availability of RTGS will provide extended flexibility to businesses for effecting payments and will enable introduction of additional settlement cycles in ancillary payment systems.



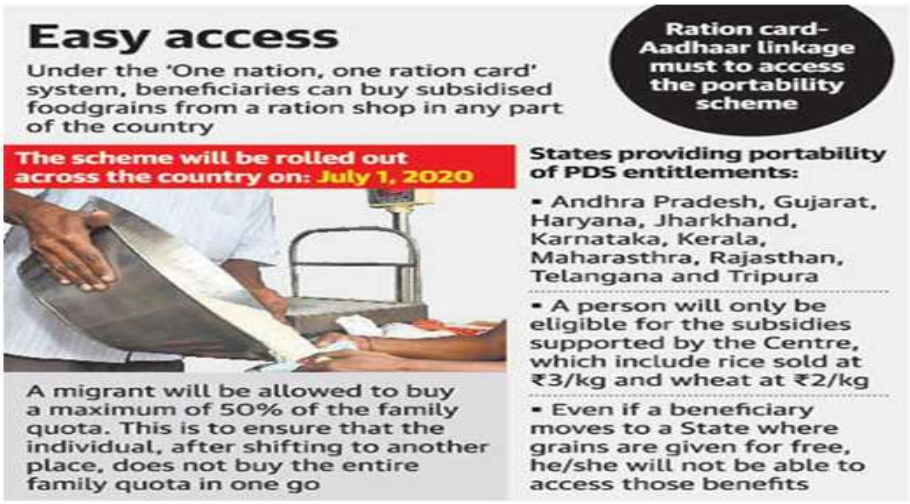
BASIS OF COMPARISON	NEFT	RTGS	IMPS
Minimum transfer value	Re. 1	Rs. 2 lakh	Re. 1
Payment options	Online and offline	Online and offline	Online
Maximum transfer value	No limit	No limit	Rs.2 lakh
Settlement type	Half hourly basis	Real time	Real time
Service timings	8AM-7PM working days (except 2nd & 4th Saturday)	8AM to 6PM for working days	Available 365 days 24*7
Inward transaction charges	No charges	No charges	Decided by the individual member banks and PPIs

4.19.Nine states successfully completes 'one nation one ration card' reform

- Due to COVID 19 pandemic Government of India has issued a grant of additional borrowing permission of 2% of the Gross State Domestic Product (GSDP), to the states for the year 2020-21.

- This has enabled the States to mobilise additional financial resources to fight the pandemic and maintain the standards of service delivery to the public.
- However, to ensure long-term debt sustainability and prevent any adverse impact on future, a part of the additional borrowing was linked to the States carrying out reforms in the sectors critical for service delivery to the citizens.
- One of the sectors identified for reforms is the Public Distribution System.
- Out of the additional borrowing limit of 2% of GSDP, 0.25% is linked to implementation of "One Nation One Ration Card system".
- This was aimed to ensure that the beneficiaries under the National Food Security Act (NFSA) and other welfare schemes, especially the migrant workers and their families, get ration from any Fair Price Shop (FPS) across the country.
- Other aims of the intended reform were to better target beneficiaries, elimination of bogus/ duplicate/ ineligible ration cards and thus enhance welfare and reduce leakage.
- For this, conditions stipulated Aadhar Seeding of all Ration Cards, biometric authentification of beneficiaries and automation of all the Fair Price Shops (FPS) in the State.
- So far nine States have successfully completed reforms in PDS and implemented One Nation One Ration System.
- These States are: Andhra Pradesh, Goa, Haryana, Karnataka, Kerala, Telangana, Tripura and Uttar Pradesh.
- On completion of reforms, additional borrowing permission of Rs.23,523 crore has been issued to them.
- Department of Food and Public Distribution in the Ministry of Consumer Affairs, Food and Public Distribution is the Nodal Department to certify that a State has met the conditions stipulated for this reform.

- To become eligible for additional borrowing, the States have to complete the reforms by 31st December, 2020.
- It is expected that many more States will complete this reform before the stipulated date.
- In addition to the One Nation One Ration Card, other reforms specified as a precondition to avail additional borrowing are: ease of doing business reform, urban local body/ utility reforms and power sector reforms.



4.20.Centre mulls new policy that can reduce India's logistics costs by 5% over next 5 years

- Context: India plans to draw up a comprehensive digital inventory of logistics assets and manpower that could be used in emergency situations like the ongoing pandemic.
- These assets could be upgraded to military standards in terms of design, construction and equipment capacity, the commerce and industry ministry has proposed in a draft cabinet note on the National Logistics Policy, 2020.
- The policy also entails handing out a a unique logistics account number to logistics service providers, track and trace, and a national registry of warehouses with geo tags providing information like available space and development of silos for bulk storage on government land through public-private partnership.
- Besides, standardised key physical components and services like packaging, handling equipment, shelving and racking, trucks, documentation, and a National Logistics Dashboard for real time monitoring of various logistics infrastructure have also been proposed.
- The policy aims at reducing India's logistics costs by 5% over the next five years and break into top 25 countries in major global logistics-related performance indices, create a single point of reference for all logistics and trade facilitation, facilitate faster clearances, double employment in the logistics sector and reduce losses due to agri-wastage.
- India ranked 44 on the World Bank's Logistics Performance Index in 2018.

- While there are no financial implications of the policy at present and funding for physical logistics infrastructure will be met under the National Infrastructure Pipeline Projects by the respective ministries, the government is likely to explore the possibility of support from multilateral sources.
- Further, co-funding options for construction and upgradation of intermodal transport, transhipment warehousing and handling facilities will be explored.
- The draft policy also seeks to remove distortions in input tax credit that limits seamless logistics across states.
- It also envisages a National Logistics Act for unified documentation for logistics services and transparency in freight charges, along with national and state master plans to identify optimal multimodal transport mix to decongest roads by promoting railways, inland waterways and coastal shipping.

4.21.Indian Railways issues draft National Rail Plan to create capacity by 2030

- Context: In order to address the inadequacies of capacity constraints and improve its modal share in total freight ecosystem of the country, Indian Railways issued draft National Rail Plan.
- The National Rail Plan will be a common platform for all future infrastructural, business and financial planning of the Railways.
- This plan is being circulated among various Ministries for their views now.
- Railways aim to finalise the final plan by January 2021.

The objective of the plan is

- To create capacity ahead of demand by 2030, which in turn would cater to growth in demand right up to 2050 and also increase the modal share of Railways from 27% currently to 45% in freight by 2030 as part of a national commitment to reduce carbon emission and to continue to sustain it. Net zero carbon emission by 2030.

VISION 2024

Focusing on future growth and development

Vision 2024 has been launched for accelerated implementation of certain critical projects by 2024

01 100% electrification

02 Multi-tracking of congested routes

03 Upgradation of speed to 160 kmph on Delhi-Howrah and Delhi-Mumbai routes

04 Upgradation of speed to 130kmph on all other Golden Quadilateral-Golden Diagonal (GQ/GD) routes

05 Elimination of all Level Crossings on all GQ/GD route

Indian Railways भारतीय रेल

Engaging different sectors for overall development!

01 For successful implementation of the National Rail Plan, the Railways will be looking to engage with Private Sector, PSUs, State Governments and Original Equipment Manufacturers (OEM)/Industries.

02 Sustained involvement of the Private Sector in areas like operations and ownership of rolling stock, development of freight and passenger terminals, development/operations of track infrastructure etc.

03 In effect the NRP envisages an initial surge in capital investment right up to 2030 to create capacity ahead of demand and increase the modal share of the Railways in freight by 45%.

04 Post 2030, the revenue surplus generated would be adequate to finance future capital investment and also take the burden of debt service ratio of the capital already invested. Exchequer funding of Rail projects would not be required.

- To assess the actual demand in freight and passenger sectors, a yearlong survey was conducted over hundred representative locations by survey teams spread all over the country.
- Forecast growth of traffic in both freight and passenger year on year up to 2030 and on a decadal basis up to 2050.
- Formulate strategies based on both operational capacities and commercial policy initiatives to increase modal share of the Railways in freight to 45% by 2030.
- Reduce transit time of freight substantially by increasing average speed of freight trains from present 22 Kmph to 50 Kmph.
- Reduce overall cost of Rail transportation by nearly 30% and pass on the benefits to the customers.
- Map the growth in demand on the Indian Railway route map and simulate the capacity behaviour of the network in future.
- Based on above simulation identify infrastructural bottlenecks that would arise in future with growth in demand.
- Select projects along with appropriate technology in both track work, signaling and rolling stock to mitigate these bottlenecks well in advance.
    - ✓ As part of the National Rail Plan, Vision 2024 has been launched for accelerated implementation of certain critical projects by 2024 such as 100% electrification, multitracking of congested routes, upgradation of speed to 160 kmph on Delhi-Howrah and Delhi-Mumbai routes, upgradation of speed to 130 kmph on all other Golden Quadrilateral-Golden Diagonal (GQ/GD) routes and elimination of all Level Crossings on all GQ/GD route.
- Future projects for implementation beyond 2024 in both track and signaling have been identified with clear cut timelines for implementation.
- Three Dedicated Freight Corridors, namely East Coast, East-West & North-South identified along with timelines. PETS survey already underway.
- Several new High Speed Rail Corridors have also been identified. Survey on Delhi-Varanasi High Speed Rail already under way.
- Assess rolling stock requirement for passenger traffic as well as wagon requirement for freight.
- Assess Locomotive requirement to meet twin objectives of 100% electrification (Green Energy) by December 2023 and also the increasing traffic right up to 2030 and beyond up to 2050.
- Assess the total investment in capital that would be required along with a periodical break up.
- Identify new streams of finance and models for financing including those based on PPP.
- For successful implementation of the National Rail Plan, the Railways will be looking to engage with Private Sector, PSUs, State Governments and Original Equipment Manufacturers (OEM)/Industries.
- Sustained involvement of the Private Sector in areas like operations and ownership of rolling stock, development of freight and passenger terminals, development/operations of track infrastructure etc.
    - ✓ Post 2030, the revenue surplus generated would be adequate to finance future capital investment and also take the burden of debt service ratio of the capital already invested.

✓ Exchequer funding of Rail projects would not be required.

4.22.How Indian companies adhere to diversity requirements

- Context: The NASDAQ stock exchange in the US may soon require all companies listed on the bourse to include at least one female board member as well as one member from a racial minority group or from the LGBTQ community on their board of directors. There also are in place diversity requirements from Indian companies and their compliance with these rules.

What is the diversity requirements that Indian companies need to meet?

- All public companies which are listed on stock exchanges and companies with either a paid-up capital of Rs 100 crore or annual turnover over Rs 300 crore are required to have at least one-woman board member under the Companies Act.
- The Securities and Exchange Board of India (Sebi) further requires, since April 1, 2020, that the top 1000 listed companies by market capitalisation have a woman board member who is also an independent director.

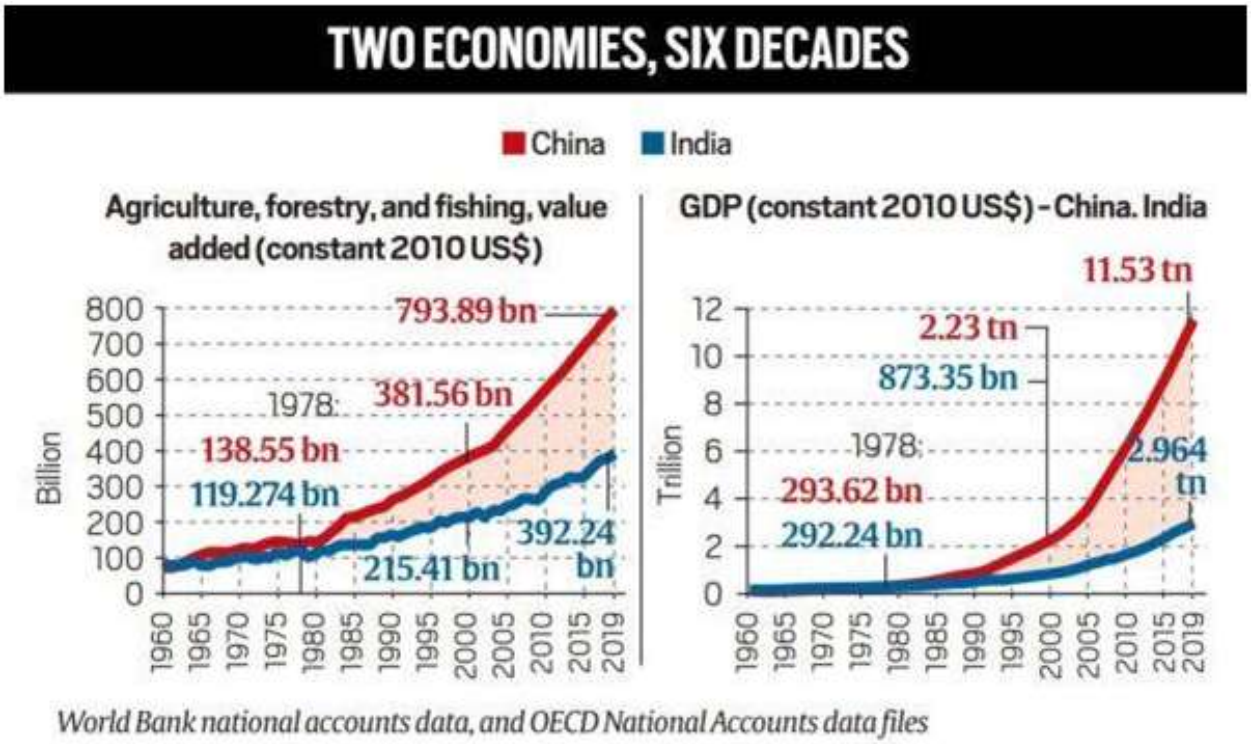
What is the level of compliance on diversity requirements by Indian companies?

- According to data compiled by Institutional Investor Advisory Services (IiAS), 17 per cent of directors in the Nifty 500 companies were women, as of the end of the last fiscal, with 44 per cent of Nifty 500 companies having two or more women directors.
- The report by IiAS noted that only 3 per cent of Nifty 500 companies had no women directors.
- Experts noted that other than some public sector enterprises (PSEs) which have lagged on the appointment of independent directors, all major companies were in compliance with the diversity requirements.
- A number of PSEs have also sought exemption from the requirement that any company without a non-executive chairman include at least 50 per cent independent directors on their board of directors as the power of appointment of directors for PSEs lies with the nodal ministry in the central government.
- It is noted that a significant number of companies had appointed relatives of promoters as directors to fulfil the requirement of a woman director and that such directors were unlikely to show the level of independence expected from a director.
- It is being argued that diversity requirement mandating a member of the LGBTQ community on the board of directors was not necessary, noting that “sexual orientation should not be an issue in appointments to the board of directors.”

4.23.How China reformed its agriculture and reduced poverty

- The current farmers protest issue:
  - ✓ The government’s argument is that opening up the agriculture sector to market forces will not only reduce the stress on government finances but also help farmers by making agriculture more remunerative.
  - ✓ The protesting farmers, however, disagree.

✓ They argue that interaction with private players will ruin them financially.



World Bank national accounts data, and OECD National Accounts data files

- A market economy essentially refers to a system where the pricing and supply of goods and services are predominantly determined by the free and voluntary interaction of people and firms in the marketplace.

China vs India

- Despite similar trends in the growth rates, the two countries have taken different reform paths;
- China started off with reforms in the agriculture sector and in rural areas, while India started by liberalizing and reforming the manufacturing sector.
- These differences have led to different growth rates and different rates of poverty reduction
- By making agriculture the starting point of market-oriented reforms, a sector which gave majority of the people their livelihood, China ensured widespread distribution of gains and build consensus and political support for the continuation of reforms.
- Reform of incentives resulted in greater returns to the farmers and in more efficient resource allocation, which in turn strengthened the domestic production base and made it more competitive.
- Besides, prosperity in agriculture favoured the development of a dynamic rural non-farm (RNF) sector, regarded as one of the main causes for rapid poverty reduction in China as it provided additional sources of income outside farming
- The rapid development of the RNF sector also encouraged the government to expand the scope of policy changes and put pressure on the urban economy to reform as well, since non-farm enterprises in rural areas had become more competitive than the state-owned enterprises (SOEs).
- Reforms of the SOEs, in turn, triggered macroeconomic reforms, opening up the economy further.

- Between 1978 and 2002, the rate of growth in agriculture nearly doubled over the 1966 to 1977 period and this was the main reason why poverty in China came down from 33 per cent of the population in 1978 to 3 per cent in 2001.
- In India, the most rapid poverty reduction occurred from late 1960s and the late 1980s but this was not because of reforms, rather due to a strong policy support to agriculture.
- India still continues with state food procurement and distribution, mainly because it is seen as affirmative action for over two-thirds of the population, including the poorest, which are dependent on agriculture and the rural economy, for livelihood.

So what was the most important differentiating factor between the two strategies?

- The Chinese policymakers first created the incentives and institutions required by the market economy and then, in the mid-1980s, they began to slowly open up markets, by withdrawing central planning and reducing the scope of procurement while expanding the role of private trade and markets.
- China had more favourable initial conditions — even in 1970, China had a significant edge over India be it health, education, more egalitarian access to land, and growth of the power sector.
- And that is why, despite the private and economic restrictions imposed on the Chinese rural population, the country could achieve a sustained growth even before the reforms.
- The production linked incentives to boost India's manufacturing is essentially about shielding the domestic firms from market competition.
- Therefore the policies are justifying import bans and higher import tariffs.
- Similarly, India's decision to stay out of RCEP is also driven by the same notion — shielding the domestic firms from market forces.
- The undermining of the Insolvency and Bankruptcy Code is again essentially a story of not letting market forces hurt the existing promoters.
- Data shows that the bulk of farm produce was traded privately even before these laws came into force.
- The key concern for India should be the creation of incentives and institutions for a market economy to function because therein lies the only sustainable solution to allaying deep-set suspicions.

4.24.NITI Aayog releases 'Vision 2035: Public Health Surveillance in India'

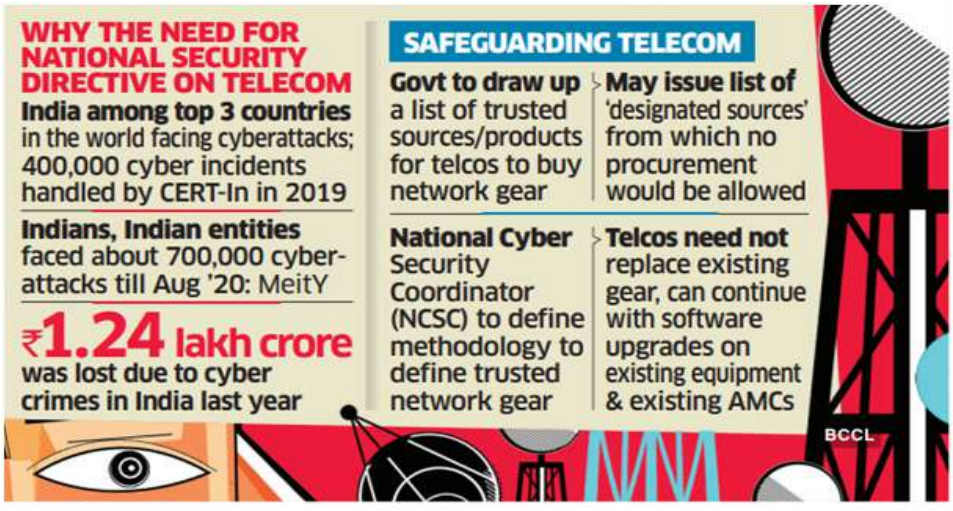
NITI Aayog has released a white paper: Vision 2035: Public Health Surveillance in India with the vision:

- To make India's public health surveillance system more responsive and predictive to enhance preparedness for action at all levels.
- Citizen-friendly public health surveillance system will ensure individual privacy and confidentiality, enabled with a client feedback mechanism.
- Improved data-sharing mechanism between Centre and states for better disease detection, prevention, and control.

- India aims to provide regional and global leadership in managing events that constitute a public health emergency of international concern.
- 'Vision 2035: Public Health Surveillance in India's a continuation of the work on health systems strengthening.
- It contributes by suggesting mainstreaming of surveillance by making individual electronic health records the basis for surveillance.
- Public health surveillance (PHS) is an important function that cuts across primary, secondary, and tertiary levels of care. Surveillance is 'Information for Action'.
- The Covid-19 pandemic has drawn attention on (re) emerging diseases due to increased interaction between human-animal-environment.
- Early identification of this interference is essential to break the chain of transmissions and create a resilient surveillance system.
- This vision document is a step in that direction, it articulates the vision and highlights the building blocks.
- It envisions a citizen-friendly public health system, which will involve stakeholders at all levels, be it individual, community, health care facilities or laboratories, all while protecting the individual's privacy and confidentiality.'
- The white paper lays out India's vision 2035 for public health surveillance through the integration of the three-tiered public health system into Ayushman Bharat.
- It also spells out the need for expanded referral networks and enhanced laboratory capacity.
- The building blocks for this vision are an interdependent federated system of governance between the Centre and states, a new data-sharing mechanism that involves the use of new analytics, health informatics, and data science including innovative ways of disseminating 'information for action'.

4.25.List of trusted sources for telecom gear soon

- Context: The government will soon declare a list of 'trusted sources' for acquiring gear for telecom networks and amend permits accordingly, a move aimed at keeping Chinese gear suppliers Huawei and ZTE out of India's Future telecom expansion as well as its 5G technology rollout, amid continuing tensions on the borders.



- Considering the need to ensure India's national security, the Cabinet has accorded approval for the National Security Directive on Telecommunication Sector

- Under the provisions of the Directive, in order to maintain the integrity of the supply chain security, the government will declare a list of 'trusted sources/trusted products' for the benefit of the telecom service providers.
- A list of 'designated sources' from which no procurement can be done may also be created.
- The telecom companies won't need to replace existing gear, and can continue with software upgrades on existing equipment as well as with existing annual maintenance contracts(AMCs).
- The new directive kicks in within 180 days from the date of approval
- The telecom licenses would be amended to reflect the new National Security Directive on Telecommunication Sector.
- The list of equipment to be covered under the directive and the methodology to designate 'trusted products' will be devised by the National Cyber Security Coordinator (NCSC)
- The NCSC in turn will make its list based on approval of a committee headed by Deputy NSA.
- The committee will be called the National Security Committee on Telecom (NSCT) and will have members from relevant departments.
- Since the outbreak of the latest Sino-Indian border tensions earlier this year, the government has taken a series of steps to make it tougher for Chinese companies to operate in India.
- It has stipulated that companies belonging to countries sharing a border with India can no longer invest under the automatic route and need their investments to be vetted by the Indian authorities.
- In addition, around 220 Chinese apps have been banned for national security reasons.
- Center has also been unofficially nudging private and state-run telcos to start avoiding Chinese equipment, but this is the first official step in the direction of barring their involvement in Indian networks, especially the5G rollout.
- The list of trusted sources/products would likely be drawn up on the basis of inputs from intelligence agencies linked to India's immediate security concerns.
- It could get periodically updated or modified as strategic relationships between countries are a dynamic affair and keep changing.
- Once a list of trusted sources is drawn up, DoT will certify the sources which meet the requirements of its preferential market access (PMA) scheme as 'Indian trusted sources'.
- The NSCT would then take measures to increase the use of equipment from such sources.
- Further, the NCSC will also release a guide for telcos on how to maintain enhanced supervision and effective control over their telecom networks to ensure that integrity of supply chain security is maintained.
- DoT will modify its existing guidelines to ensure that telecom operators comply with the amended guidelines.

4.26.In farm laws, the dispute settlement provision Govt has offered to roll back

- Context: In its bid to placate farmers protesting on the borders of the national capital for over three weeks against the new farm laws, the Centre offered to significantly water down key provisions of these laws. Among the changes proposed is the rollback of a unique dispute resolution mechanism for issues between farmers and buyers, and instead bringing such disputes under the jurisdiction of a civil court.

What is the dispute settlement mechanism?

- The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, 2020, provides a buyer a right to engage in trade and commerce of a farmer's produce across the country.
- This means a farmer has freedom to engage in intra-state and inter-state trade with buyers, expanding her choices beyond a traditional market.
- The law also provides for a dispute resolution mechanism in Chapter 3 of the Act.
- Section 8 of the Act, which lays down the "dispute resolution mechanism for farmers" states that "in case of any dispute arising out of a transaction between the farmer and a trader", a Conciliation Board appointed by the Sub- Divisional Magistrate will settle the dispute.
- It says the settlement by the Conciliation Board will be binding on the parties.

How will the Board decide the dispute?

- The law provides that the Board will consist of a chairperson and two to four such members as the Sub-Divisional Magistrate may deem fit.
- Parties will first have to make an application to the SDM seeking a "mutually acceptable solution through conciliation".
- Then the Board will take up the dispute.
- The parties themselves can recommend one or two members each as members to the Board along with the Chairperson, who will be a government employee appointed by the Sub-Divisional Magistrate.

What if the parties cannot reach a settlement?

- If the dispute is not settled within 30 days of being brought to the Board, the SDM will hear the dispute acting as the "Sub-Divisional Authority" for settlement of such dispute.
- The Sub-Divisional Authority is empowered to pass three kinds of orders under the law: (a) pass an order for the recovery of the amount payable to the farmers and traders; (b) impose a penalty as stipulated in sub-section (2) of section 11; or (c) suspend for such period as he deems fit or cancel the right to operate as an electronic trading and transaction platform.
- The law also provides for an appeal against the orders of the Sub-Divisional Authority, which is within 60 days from the date of the order to an officer not below the rank of Joint Secretary to the Government of India, to be nominated by the Central Government for this purpose.

Why are farmers upset with this dispute resolution framework?

- As the new law provides for a special dispute resolution mechanism, it bars the jurisdiction of the civil court from entertaining any suit or proceedings in respect of any matter that could be dealt through the special mechanism provided in the law.
- Section 15 of the Act says "no civil court shall have jurisdiction to entertain any suit or proceedings in respect of any matter, the cognisance of which can be taken and disposed of by any authority empowered by or under this Act or the rules made there under."
- It is essentially the replacing of the jurisdiction of civil courts with a heavily bureaucratic procedure under the authority of the SDM, a government employee, that has raised fears among the farmers.

Can a statute bar courts from having jurisdiction?

- Jurisdiction of civil courts is governed by Section 9 of the Civil Procedure Code.
- The provision says that civil courts have the jurisdiction to try all suits of a civil nature, except suits of which cognisance is either expressly or impliedly barred.
- So statutes routinely bar the jurisdiction of civil courts to set up alternative dispute mechanisms.
- Many statutes, including the Income Tax Act, rent Control Laws, Companies Act, bar jurisdiction of civil courts giving preference to alternate dispute mechanisms.
- However, statutes cannot take away the jurisdiction of the High Courts and the Supreme Court.
- Any action by the state can be challenged before such courts on various grounds including arbitrariness.
- Judicial review is part of the basic structure of the Constitution and the right to approach courts for violation of fundamental rights is itself a fundamental right under Article 32 of the Constitution.
- In the context of the farm laws, decisions of the Sub-Divisional Authority can always be challenged before the relevant High Court on grounds of arbitrariness etc, if either party is aggrieved.

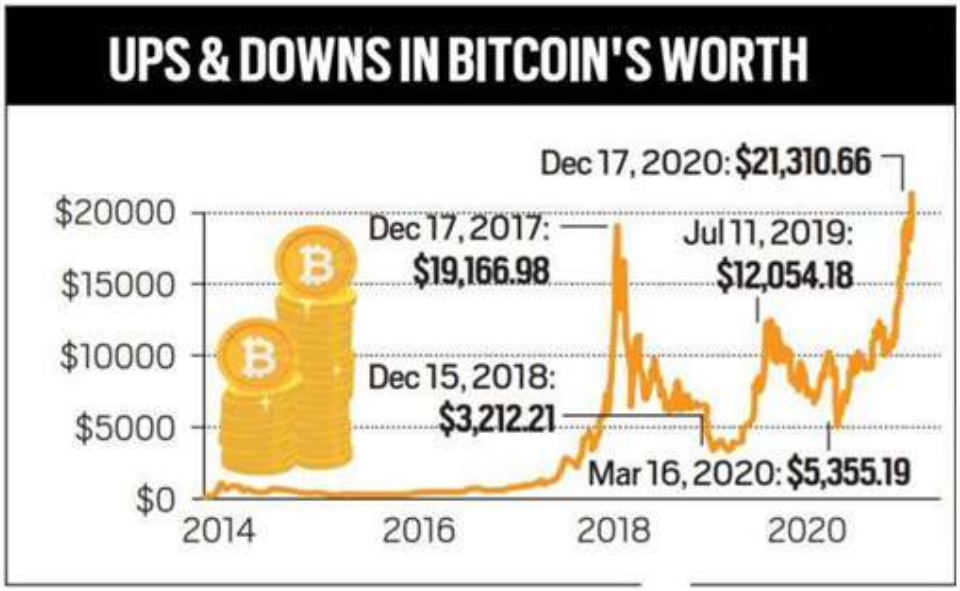
4.27.Bitcoin

- Context: Bitcoin, the crypto currency, has breached barrier against the US dollar — the $20,000 mark

How does a Bitcoin work?

- The origin of Bitcoin is unclear, as is who founded it.
- A person, or a group of people, who went by the identity of Satoshi Nakamoto are said to have conceptualised an accounting system in the aftermath of the 2008 financial crisis.
- Nakamoto published a white paper about a peer-to-peer electronic cash system, which would "allow online payments to be sent directly from one party to another without going through a financial institution".
- Bitcoins are generally identified with a Bitcoin address, which comprises 26-35 alphanumeric characters starting with either "1" or "3".
- This address, which remains anonymous, represents the destination of a Bitcoin, or a fraction.

- Originally, the Bitcoin was intended to provide an alternative to fiat money and become a universally accepted medium of exchange directly between two involved parties.
- However, after Bitcoins picked up momentum, some entities started establishing exchanges — on lines of stock exchanges — for people to buy and sell Bitcoins against fiat money such as dollars or euros or pounds.
- Early proponents of the crypto currency argued that once an exchange was established, all the strengths of a Bitcoin went away, considering a third-party institution was involved once again for money to change hands.



Are records of Bitcoin transactions maintained?

- Nakamoto mooted an idea for a publicly available, open ledger that would contain all the transactions ever made, albeit in an anonymous and an encrypted form.
- This ledger is called blockchain.
- Considering the public and open nature of the ledger, proponents of this currency system believe it could help weed out corruption and inefficiencies in the system.
- In a traditional financial deal in which two parties are using fiat money, a third-party organisation — usually a central bank — assures that the money is genuine and the transaction is recorded.
- With Bitcoin, a chain of computers is constantly working towards authenticating the transactions by solving complex cryptographic puzzles.
- For solving the puzzles, these systems are rewarded with Bitcoins.
- This process is called Bitcoin mining.

How does one acquire a Bitcoin?

- One can either mine a new Bitcoin if they have the computing capacity, purchase them via exchanges, or acquire them in over-the-counter, person-to-person transactions.
- A Bitcoin exchange functions like a bank where a person buys and sells Bitcoins with traditional currency.

- Depending on the demand and supply, the price of a Bitcoin keeps fluctuating.
- Miners are the people who validate a Bitcoin transaction and secure the network with their hardware.
- The Bitcoin protocol is designed in such a way that new Bitcoins are created at a fixed rate.
- No developer has the power to manipulate the system to increase his profits.
- One unique aspect of Bitcoin is that only 21 million units will ever be created.
- However, transactions can be denominated in sub-units of a Bitcoin. A Satoshi is the smallest fraction of a Bitcoin.

What has led to the rise in Bitcoin prices?

- The prices have been driven by various factors, including increased acceptance during the pandemic.
- Globally, large players like payments firm PayPal, and Indian lenders like State Bank of India, ICICI Bank, HDFC Bank and Yes Bank, have given legitimacy to crypto currency through some of their decisions.
- For example, these Indian banks reportedly have allowed their customers to use their bank accounts to fund crypto currency trading.
- In India, accounts of several exchanges were frozen by financial institutions back in 2018 following a fiat from the Reserve Bank of India that barred banks from using their systems for crypto currency-related transactions. However, the Supreme Court ruled against this order in March this year
- The biggest factor (in the recent rise of Bitcoin prices) has been the fact that some pension funds and insurance funds took permission to park a small part of their portfolio in Bitcoins.
- Once that happened, the availability is an issue leading to the spike in prices

What investment opportunity does Bitcoin present?

- Bitcoin did not intend it to be used as an asset, but the mushrooming of exchanges turned it into one.
- Traditional investment experts are wary of Bitcoin as an investment as there is not any underlying fundamental that drives its price and it's mostly driven by supply and demand and on technical factors
- It is an alternative currency which is digital in form and one has to be careful while going for it.

4.28.Govt exploring setting up bad bank

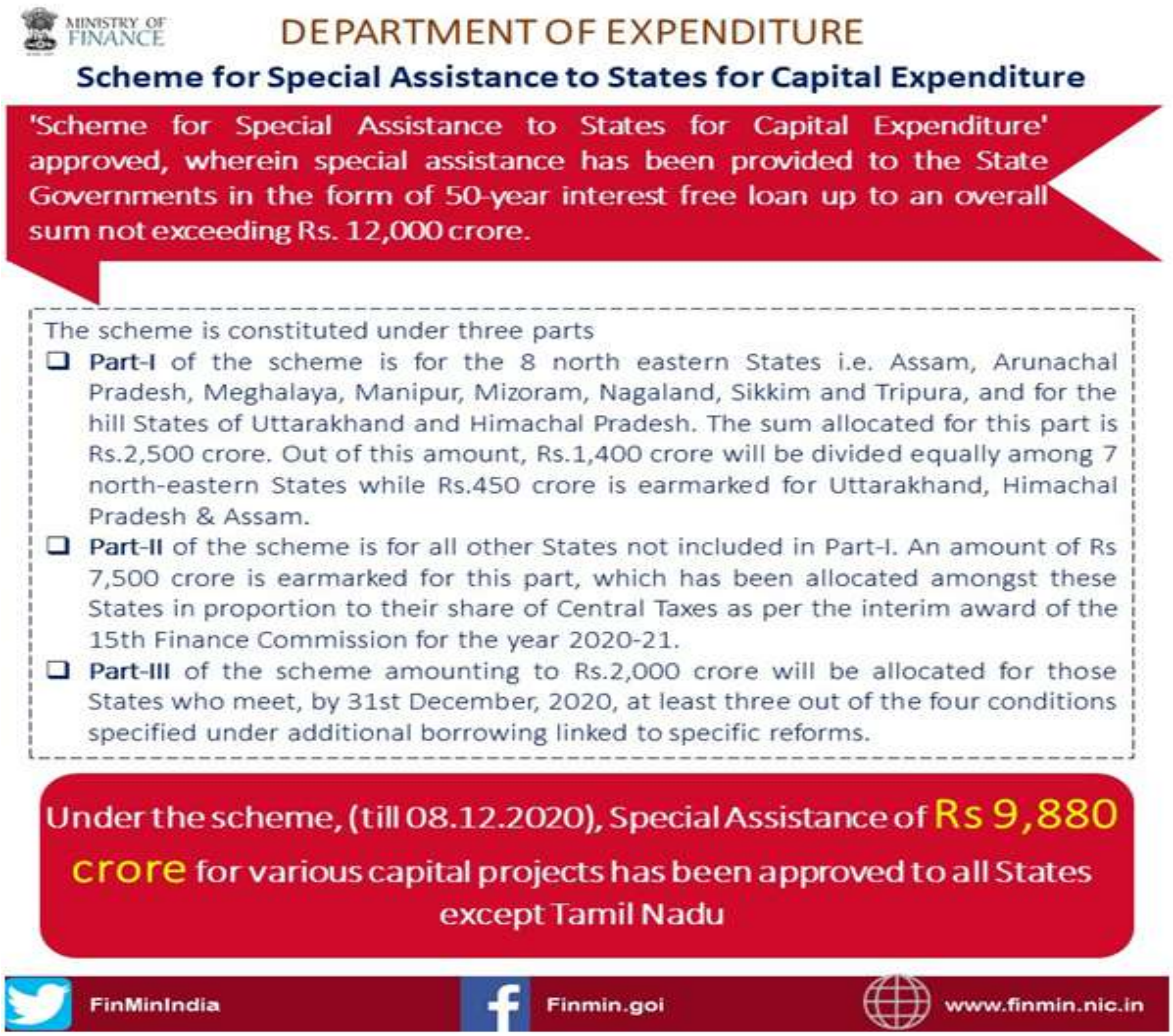
- Context: The government is exploring options, including setting up of a bad bank, to improve the health of the country's banking sector
- Government has recapitalised public sector banks and continue to pump in capital as per requirements.
- There have been differences of opinion on setting up of a bad bank.
- In June, Chief Economic Adviser said that setting up of a bad bank may not be a potent option to address the non-performing asset woes in the banking sector

- When a bank sells bad loans, it has to take a haircut because when Rs 100 goes bad, the actual amount that can be expected is lower than Rs 100 and that leads to haircut.
- So, when the bank has to sell that loan to an ARC (Asset Reconstruction Company) or a new institution that is created, in that case, it has to take haircut.
- When it takes haircut that will impact the P&L (Profit & Loss).
- And that is one of the key aspects affecting the selling of loans.
- So, till that particular aspect is not addressed, creating a new structure may not be as potent in addressing the problem
- Currently, banks sell their bad loans to ARCs as per the prudent norms of the Reserve Bank of India.
- Also some key aspects like transparency and recovery rate are to be addressed for the same.
- To help the MSME sector, the government has announced 100 per cent guarantee for the smaller industries so that the banks could lend to them.

4.29.Finance Ministry approves Rs 9,879 cr capital exp proposal of 27 state

The scheme is aimed at boosting capital expenditure by the state governments who are facing difficult financial environment this year due to the shortfall in tax revenue

- Capital expenditure projects have been approved in diverse sectors like, health, rural development, and water supply.
- The Finance Ministry has approved Rs 9,879.61 crore worth capital expenditure proposals of 27 states.
- Of this, Rs 4,939.81 crore has been released as the first installment.
- All states, except Tamil Nadu, have availed benefits of the newly announced scheme for 'Special Assistance to States for Capital Expenditure', which was announced on October 12 as part of Aatma Nirbhar Bharat package.
- Capital Expenditure has a higher multiplier effect, enhancing the future productive capacity of the economy, and results in a higher rate of economy growth.
- Therefore, despite the adverse financial position of the Central Government, it was decided to extend a special assistance to the state governments in respect of capital expenditure, in financial year 2020-21.
- The capital expenditure projects have been approved in diverse sectors like, health, rural development, water supply, irrigation, power, transport, education, urban development.
- As part of the Aatma Nirbhar Bharat Package, the government had announced that the Centre will offer Rs 12,000 crore special interest-free 50-year loan to states, exclusively for capital expenditure.



4.30.India seeks tariff renegotiations at WTO

- India has proposed to renegotiate the upper tariff limits on certain items, reportedly information technology products, at the World Trade Organization (WTO) beginning 1 January.
- The move comes at a time when the Centre has been encouraging domestic manufacturing in select sectors through a production-linked incentive scheme under the Atmanirbhar Bharat Abhiyan.
- WTO rules allow countries to renegotiate bound rates, or upper tariff limits, for products with substantial interest in exports if the country's applied or current tariff is about to breach the bound rate.
- The country has to compensate to raise its bound rate to the exporting country through negotiations.
- In 1988-99, after India lost the case for quantitative restriction on rice and maize, it had to renegotiate tariffs of such items under Article 28 with Brazil, Argentina, the US, the EU and Australia, which had substantial trading interest in the products.
- As a result of the renegotiations, India got to impose tariff quotas on milk, cream powder, maize and mustard oil.
- It also got to raise tariffs on rice and millet to 80% and 70%, respectively, from 0%.
- But in return, India had to substantially reduce tariffs on a host of items, including butter, oranges and grapefruit, to compensate the other countries.

- Here India could be opening another front of renegotiation with member countries on IT products, including smartphones on which it has hiked duties, believed by many countries to be in violation of the IT Agreement it had signed in 1996 under which tariffs on such products need to be kept at zero.
- Under the programme to promote indigenous manufacturing of mobile handsets, starting from the FY16 budget, India has hiked customs duties in a phased manner on mobile phones and components including chargers, batteries, microphones, receivers, keypads, USB cables, printed circuit board assembly and camera modules.
- Starting 1 October this year, the government has also imposed a 10% customs duty on the display assembly and touch panel of handsets.
- The moves prompted the US, the EU and China to drag India to the dispute settlement mechanism of the WTO.

4.31.Foreign Ministry Launches Website to Boost Two-Way Economic Engagement

- The Ministry of External Affairs launched an economic diplomacy website which will act as a two-way funnel connecting Indian nationals' businesses and states globally for enhancing exports, exploring employment opportunities as well as attracting foreign industries and business to India.
- It aims to provide critical and relevant information on major economic indicators, central and state government policy updates as well as the latest business news and trade data.
- The website also includes information on global mineral resource endowments, opportunities for agricultural exports and employment abroad for Indian nationals and businesses
- It will also showcase India's economic, sectoral and state-wise trends that make for an attractive economic partnership.
- The economic and policy profiles of the states and Union territories along with the plethora of economic engagements and opportunities that they offer have been highlighted in extensive detail
- The website will connect interested investors to relevant government agencies such as APEDA (Agricultural and Processed Food Products Export Development Authority) for agricultural exports from India, Indian trade portal for trade with India and Invest India for inward investment respectively.
- It is in line with the vision of doubling farmers'' income by 2022
- The MEA through its missions and posts plays an increasingly important role in facilitating, in providing inputs to the APEDA, the Ministry of Commerce and Industry and the Ministry of Agriculture and Farmers Welfare, for diversifying markets and enhancing the incomes of farmers through exports
- The aim is to connect businesses seeking to conduct trade and investment overseas with Indian missions and posts, and alert them to the relevant guidelines.
- Indian missions and posts abroad can also access periodically updated business related information on India aimed at important stakeholders in the overseas Indian community as well as potential foreign investors.

- In pursuit of Aatma nirbhar Bharat the MEA has been working in collaboration with the Ministry of Commerce and Industry, the minister of tourism and other line ministries to promote what was called the three T's -- trade, tourism and technology -- into India.

4.32.Australia and India Economic Relations

- India recently launched Australia Economic Strategy (AES) report
- AES is the only strategy report ever produced by the Indian government for a specific country, and is a reciprocal report to Australia's India Economic Strategy to 2035 (IES 2035) report released in 2018.
- The IES2035 set a target for India to become one of Australia's top three export markets, to make India the third-largest destination in Asia for Australian outward investment, $100 billion by 2035, and to establish a bigger, better trade basket with balanced trade relations between both countries.
- For Australia-India ties, 2020 has been a year of promise.
- The year started with the Australia India Business Exchange (AIB-X), one of the largest trade missions to India in the past five years, followed by the historic virtual summit between the Australian and Indian prime ministers in June, which led to the elevation of the bilateral relationship to a Comprehensive Strategic Partnership.
- The Indo-Pacific provides a meeting point for Australian and Indian interests, Supply Chain Resilience Initiative (Australia, India and Japan) and the Quad grouping (United States, India, Japan and Australia), supplemented by Australia's recent participation in the Malabar exercises.
- The growing significance of these ties is also evident from the recent creation of a new vertical in the Ministry of External Affairs, which has an Oceania territorial division with Australia at its center.
- The new division also includes ASEAN and the Indo-Pacific divisions within it.
- The release of the AES is timely, covering a wide range of sectors and keeping in mind post-COVID-19 recovery, which both Australia and India will need to work on.
- The emphasis in the document is on a wide variety of sectors as well as other emerging fields for the future.
- It offers creative ideas for advancing ties in areas in which Australia and India have not engaged with each other, like cost effective clinical trials, traditional medicines like Ayurveda, IT-specific visas for talent flow, healthcare, trauma care, and aged-care support.
- The AES strongly recommends a six-month review of the strategy and IES 2035 implementation for the next two years.
- It asks for sector-specific specialized delegation exchanges, sharing of more success stories between both countries, and a focus on matching of businesses with similar goals.
- It also focuses on achieving a more operationalized and granular approach to execution, developing corporate Australia's interest in India's growth story, ensuring regular engagement between trade bodies, sector-specific joint working groups, mutual investment funding across key sectors, the setting up of startup and innovation and humanities funds, more direct flights between Australia and India's major business hubs, and a renewed focus on negotiating an Australia-India free trade Agreement (FTA).

- The two reports (IES 2035 and AES) together create a perfect roadmap for the future economic engagement between India and Australia.
- First, a goods, services, and investment-focused FTA with Australia would boost key Indian exports like textiles, clothing, auto parts, and jewelry, and offer an independent venue for negotiation with Australia.
- It will also facilitate investment flows from Australia, which has the world's third-largest pool of investment funds under management.
- An FTA could bolster the confidence that businesses have in the Indian operating environment.
- The welfare gain from the FTA could be in the range of 0.15 and 1.14 percent of GDP for India and 0.23 and 1.17 percent for Australia, further enhancing key engagement in sectors like agriculture, food processing, mining, and natural resources.
- Second, India is exporting only 10 percent of its GDP and is heavily dependent on domestic consumption.
- Australia's advanced manufacturing accounts for around half of Australia's A$100 billion plus annual manufacturing output and is one of the fastest growing export sectors.
- India can explore synergies with Australia in advanced manufacturing as part of "Make in India 2.0" (which includes segments such as robotics, artificial intelligence, genomics, chemical feedstock, and electrical storage).
- Advanced manufacturing technologies today are vital to gain global competitiveness in cost, speed, innovation, and quality.
- Third, the success of India's e-mobility and renewable-energy goals primarily depend on the availability of critical minerals, used across telecommunications and electronics, healthcare, transportation, aerospace, defense industries in advanced applications.
- Australia has released a list 24 key critical minerals of which it can emerge as a potential supplier, along with the list of critical minerals projects in the country, which offers off-take and investment opportunities to public and private sector organizations across the world.
- India's public and private sector, along with its government consortium (KABIL) on critical minerals, can look at these assets to secure future supplies and build an efficient energy economy and future competitiveness.
- Australia's mining equipment, technology and services sector can offer a range of solutions to the mining industry in India, which lags behind other mining countries across all stages of mining—geoscience, production, and reclamation.
- Fourth, the discourses on education partnership between both countries must go beyond enrollment numbers and look at capacity building partnerships in science, technology, engineering, and mathematics.
- Fifth, deeper cultural understanding is integral to strong bilateral ties. Australia must make an effort to understand the New India better.
- The opportunities will not come to Australian businesses; they must be sought out actively and assertively.

4.33.India plans $60 billion investment in gas infrastructure, says Dharmendra Pradhan

- Context: Petroleum Minister said the government has planned a $60-billion investment for creating gas infrastructure in the country till 2024, and gas' share in the energy mix is expected to rise to 15 percent by 2030.
- Currently, gas accounts for 6 percent in the country's total energy mix.
- The $60 billion spend in creating gas infrastructure till 2024, includes pipelines, LNG terminals and CGD (city gas distribution) networks.
- A gas-based economy is being envisioned by increasing the share of natural gas in India's primary energy mix from 6.2 percent to 15 percent by year 2030.
- India's first automated national-level gas trading platform was launched in June this year to promote and sustain an efficient and robust gas market and foster gas trading in the country.
- Coverage of CGD projects are being expanded to 232 geographical areas spread over 400 districts, with potential to cover about 53 percent of the country's geography and 70 percent of population
- Clean mobility solutions are being adopted with greater use of LNG (liquefied natural gas) as a transportation fuel, including long haul trucking.
- There is a plan to have 1,000 LNG fuel stations across the country.
- This year, India has achieved the milestone of completely filling all the strategic petroleum reserves with a total capacity of 5.33 MT (million tonnes) constructed at Visakhapatnam, Mangaluru and Padur.
- The process of establishing another 6.5 MT commercial-cum-strategic petroleum storage facilities at two locations, Chandikol and Padur, under the public-private partnership model has been initiated.

4.34.US put India on its currency watchlist

- Context: The United States has once again included India in its monitoring list of countries with potentially “questionable foreign exchange policies” and “currency manipulation”.

What does the term ‘currency manipulator’ mean?

- This is a label given by the US government to countries it feels are engaging in “unfair currency practices” by deliberately devaluing their currency against the dollar.
- The practice would mean that the country in question is artificially lowering the value of its currency to gain an unfair advantage over others.
- This is because the devaluation would reduce the cost of exports from that country and artificially show a reduction in trade deficits as a result.

What are the parameters used?

- An economy meeting two of the three criteria in the Trade Facilitation and Trade Enforcement Act of 2015 is placed on the Monitoring List. This includes:

- ✓ A "significant" bilateral trade surplus with the US — one that is at least $20 billion over a 12-month period.
- ✓ A material current account surplus equivalent to at least 2 percent of gross domestic product (GDP) over a 12-month period.
- ✓ "Persistent", one-sided intervention — when net purchases of foreign currency totalling at least 2 percent of the country's GDP over a 12 month period are conducted repeatedly, in at least six out of 12 months.

1. Once on the Monitoring List, an economy will remain there for at least two consecutive reports "to help ensure that any improvement in performance versus the criteria is durable and is not due to temporary factors.
2. The administration will also add and retain on the Monitoring List any major US trading partner that accounts for a "large and disproportionate" share of the overall US trade deficit, "even if that economy has not met two of the three criteria from the 2015 Act"

5. Environment & Ecology

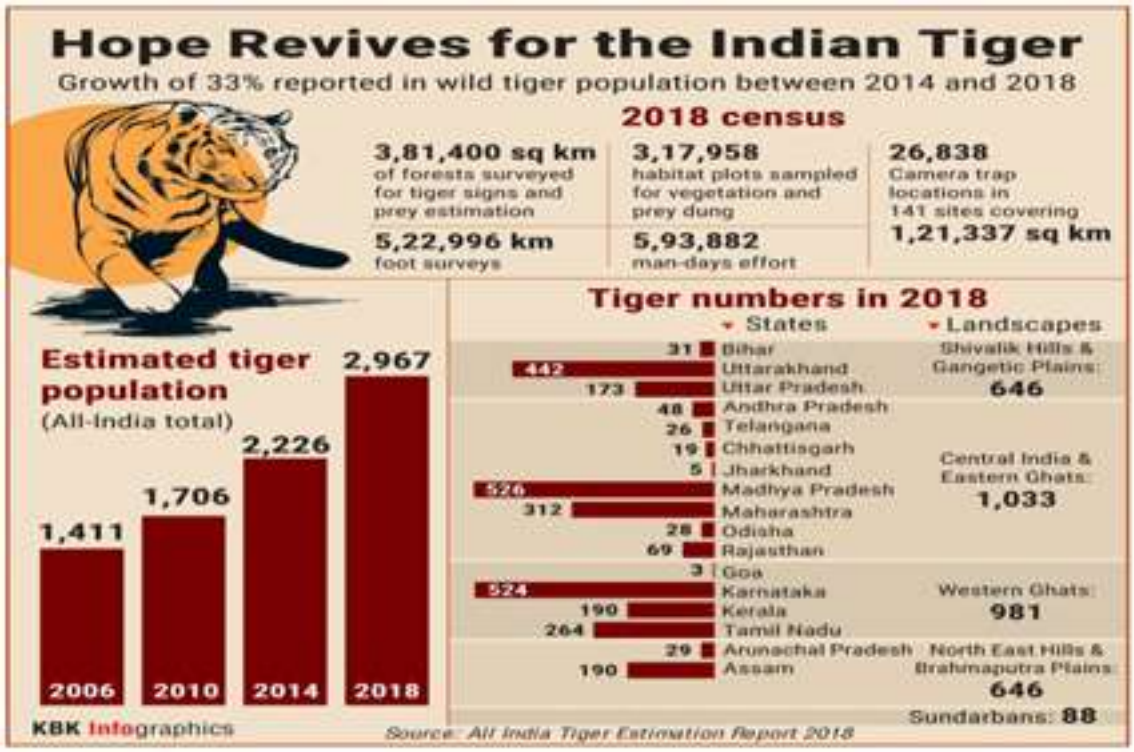
Click on the links given below to watch the following questions on YouTube

- Video 1
- Video 2
- Video 3
- Video 4

5.1.Pilibhit tiger reserve gets the first TX2 award

- The Pilibhit Tiger Reserve (PTR) and the Uttar Pradesh Forest department have bagged the first-ever international award, TX2, for doubling the number of tigers in four years against a target of 10 years.
- PTR was the first to receive the award among 13 tiger range countries.
- It achieved this goal in just four years from 2014, when it had 25 tigers which went up to 65 in 2018.
- The global target of doubling the tiger population was set in 2010 by the partners in TX2 award -- UNDP, Global Tiger Forum, and International Union for Conservation of Nature, World Wide Fund for Nature, Conservation Assured/Tiger Standards and the Lion's Share.
- PTR, had applied for this award in September this year after the National Tiger Conservation Authority (NTCA) released this year's the state-wise figures of the tiger estimation which was based on the census conducted in 2018 in all tiger reserves across the country.
- The success is attributed to rigorous patrolling with constant use of Monitoring System for Tigers-Intensive Protection and Ecological Status (M-STrIPE), stringent action against wildlife criminals and poachers and forest and grassland management.
- The TX2 goal is a global commitment to double the world's wild tigers by 2022.

- From a population of perhaps 100,000 a century ago, wild tiger numbers hit an all-time low of as few as 3,200 in 2010.
- That same year, all 13 tiger range governments came together for the first time at the St Petersburg Summit where they committed to double the number of wild tigers by 2022, the next Chinese Year of the Tiger.
- WWF played a critical role in creating a shared vision for tiger conservation by committing to the same goal.
- M-STrIPES, short for Monitoring System for Tigers - Intensive Protection and Ecological Status is a software-based monitoring system launched across Indian tiger reserves by the Indian government's National Tiger Conservation Authority in 2010.
- Project Tiger was launched in 1973. With the aim of ensuring that the population of Bengal tigers is well-maintained in their natural habitats, this project continues to do everything possible to protect and save the tiger.



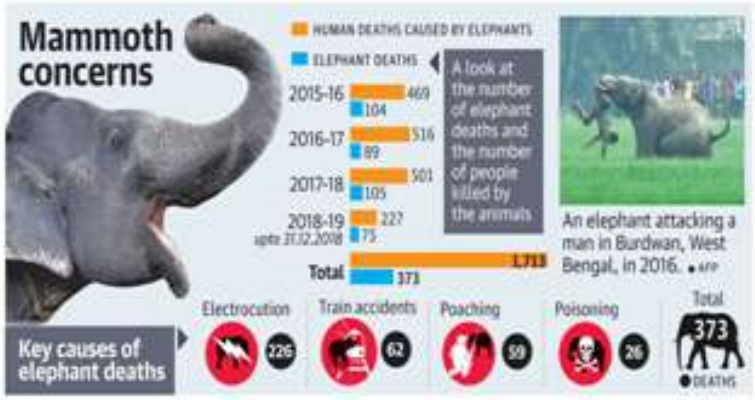
5.2.Blue Tide Spotted in Mumbai Beaches

- Context: Over the past few days, the visitors of various beaches in Maharashtra have been amazed to spot a spectacularly glowing 'blue tide' when the waves hit the shoreline
- This natural phenomenon is called bioluminescence and appears when luminescent marine life colours the sea in a deep shade of blue.
- The light emitted by a bioluminescent organism is produced by energy released from chemical reactions occurring inside (or ejected by) the organism.
- This fluorescent occurrence is described as 'neelimachli' (blue fish) by the locals.
- This is a recurring phenomenon which is caused by bioluminescent plankton called Noctiluca scintillans, commonly known as sea sparkle.

- While smaller blooms may be harmless, slow moving larger blooms may cause severe hypoxic conditions that result in fish die-offs in an area.
- According Central Marine Fisheries Research Institute, the phenomenon is characterized by the emission of light produced by phytoplanktons (microscopic marine plants), commonly known as dinoflagellates. The light is produced through a series of chemical reactions due to luciferase (oxidative enzymes) protein
- It is a "cold light." Cold light means less than 20% of the light generates thermal radiation, or heat.
- Bioluminescent dinoflagellate ecosystems are rare, mostly forming in warm-water lagoons with narrow openings to the open sea.
- They dinoflagellates gather in these lagoons or bays, and the narrow opening prevents them from escaping. The whole lagoon can be illuminated at night.
- It is used by living things to hunt prey, defend against predators, find mates, and execute other vital activities.
- Some species luminesce to confuse attackers. Many species of squid, for instance, flash to startle predators, such as fish. With the startled fish caught off guard, the squid tries to quickly escape.
- Organisms can luminesce when they are disturbed. Changes in the environment, such as a drop in salinity, can force bioluminescent algae to glow, for instance. These living lanterns can be seen as spots of pink or green in the dark ocean.

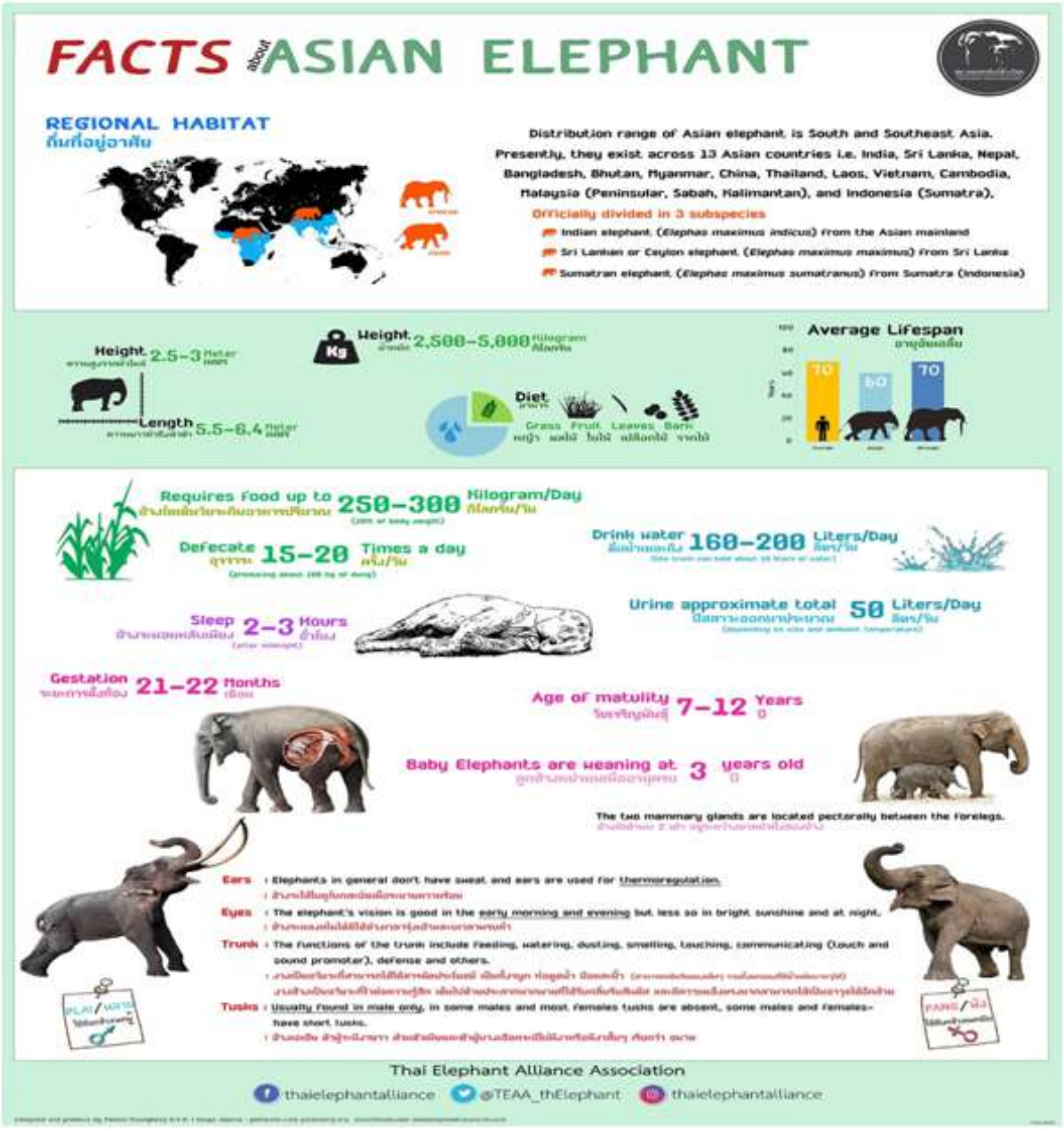
5.3.Elephant electrocution

- Context: Out of two elephants one elephant died due to coming in contact with a live wire near Bargi dam area in Jabalpur (M.P.)



- In the three years between 2015-2018, human-elephant conflict caused 1,713 human and 373 elephant deaths by unnatural causes, including electrocution and poaching.
- Factors responsible for habitat disturbance and urbanization, could be the cause of the alarming rise in unnatural human and animal casualties.
- Electrocution of elephants is a particular cause for concern in managing India's elephant population.
- With free electric power available for farmers, many have been drawing illegally to power their fences to protect their crops from wild boars.
- Unfortunately, when elephants stray from PA to the villages to feast on their crops, they die while accidentally stepping on the live wires during the night time.
- Small farmers who cannot afford commercial fences tend to improvise and a "homemade" electric fence is often just a single wire strung out on the periphery of a farm illegally connected to an overhead power line.

- Because they lack a transformer, illegal fences deliver a full blast of 220 volts of alternating current, strong enough to fell an elephant on the spot.



- The World Elephant Day is celebrated on 12th August every year to spread awareness for the conservation and protection.
- The day was launched in 2012 to bring attention to the urgent plight of Asian and African elephants.
- IUCN Red List Status: Endangered.
- Wildlife (Protection) Act, 1972: Schedule I.
- Chief Concerns are:
  - ✓ Escalation of poaching.
  - ✓ Habitat loss.
  - ✓ Human-elephant conflict.

✓ Mistreatment in captivity.

✓ Abuse due to elephant tourism.

Conservation

- GajYatra which is a nationwide awareness campaign to celebrate elephants and highlight the necessity of securing elephant corridors.
- The Monitoring the Illegal Killing of Elephants (MIKE) programme, launched in 2003, is an international collaboration that tracks trends in information related to the illegal killing of elephants from across Africa and Asia, to monitor effectiveness of field conservation efforts.
- Project Elephant: It is a centrally sponsored scheme and was launched in February 1992 for the protection of elephants, their habitats and corridors.
- The Ministry of Environment, Forest and Climate Change provides the financial and technical support to major elephant range states in the country through the project.

5.4.Sustainable peatland management can prevent future pandemics

- Context: Sustainably managing peatlands — peat-swamp forests found around the tropics — can protect humans from future pandemics, according to a new study.

- Sustainably managing peatlands — peat-swamp forests found around the tropics — can protect humans from future pandemics, according to a new study.

- Peatlands are rich in biodiversity, including many potential vertebrate and invertebrate vectors, or carriers of disease.
- These included numerous vertebrates known to represent a risk of spreading zoonotic disease, such as bats, rodents, pangolins and primates. Zoonotic diseases are those that jump from animals to humans.
- These areas also face high levels of habitat disruption such as wild or human-made fires and wildlife harvesting that were perfect conditions for potential zoonotic emerging infectious diseases (EID).

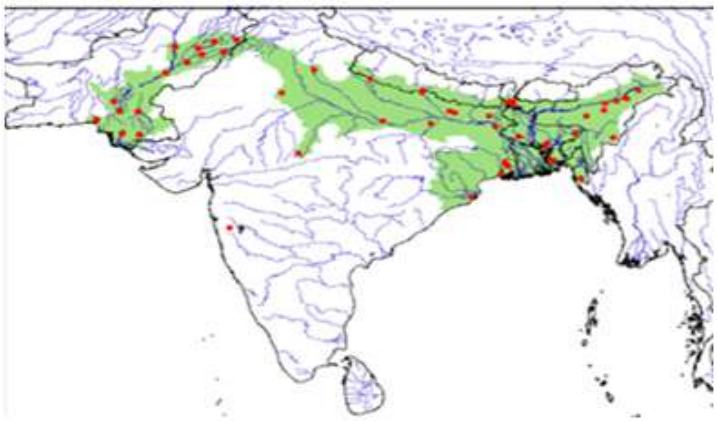
- The first reported case of Ebola in 1976 was from a peatland area, as was the most recent outbreak in May 2020, it noted.
- The cradle of the HIV/AIDS pandemic was believed to be around Kinshasa in the Democratic Republic of the Congo, another area with extensive peatlands.
- High densities of domestic and semi-wild animals reared on peatlands could also serve as a direct or indirect zoonotic EID vector to humans.

- Sustainably managing tropical peatlands and their wildlife was important for mitigating the impacts of the ongoing novel coronavirus disease (COVID-19) pandemic.

5.5.Indian peacock softshell turtle

- Context: A turtle of a vulnerable species was rescued from a fish market in Assam's Silchar.
- The Indian Peacock Softshell Turtle (Nilssonia hurum) is one of the most beautiful chelonians in the world, but it is unclear just what the reason for their unique carapace pattern is.
- This pattern fades as they get older, and it may reflect a defence mechanism from predators, similar to the eye spots of some species of moths and butterflies.

- About 29 species of turtles have been recorded in India, out of which 20 are found in Assam.
- About 90% of the turtles in Assam are facing some kind of threat.
- Conservation status:
  - ✓ IUCN : Vulnerable
  - ✓ IWPA : Schedule I
  - ✓ CITES : Appendix I
- This species is confined to India, Bangladesh and Pakistan.
- It is widespread in the northern and central parts of the Indian subcontinent.
- Distribution map of Indian Peacock Softshell Turtle (Source: Iverson and Iverson, 1992).



Characteristics, Habitat and Behaviour

- The Indian peacock soft-shell turtle has a large head, downturned snout with low and oval carapace of dark olive green to nearly black, sometimes with a yellow rim.
- The head and limbs are olive green; the forehead has dark reticulations and large yellow or orange patches or spots, especially behind the eyes and across the snout, that are larger than those in its sister species.
- Males possess relatively longer and thicker tails than females, with the cloaca situated close to the tail-tip.
- Indian peacock softshell turtle is found in rivers, streams, lakes and ponds with mud or sand bottoms.
- It is omnivorous, juveniles observed feeding on mosquito larvae and fish, while adults consume snails, earthworms, prawns, fish, frogs, carrion, and vegetation.
- Animals maintained in captivity are known to eat rice and palm sugar sweetmeats.

Major Threats

- The species is heavily exploited for its meat and calipee (the outer cartilaginous rim of the shell).
- Threats in the River Ganga to the species are those generic for all large river turtles, including reduction of fish stock, as a result of overfishing, pollution, increase in river traffic, and sand-mining, among others.

5.6.Warning of Brahmaputra Floods In Tree Rings

- Every year, the Brahmaputra floods vast areas in India's Northeast, particularly Assam.
- Existing projections of flooding of the Brahmaputra are based on observations of past rainfall patterns, but they rely on discharge-gauge records that date back only to the 1950s.
- A new study which is based on an examinations of tree rings, provided a picture of rainfall patterns going back seven centuries.
- The rings showed that the post-1950s period was actually one of the driest since the 1300s — there have been much wetter periods in the past.
- Using climate models to simulate for future discharge, the researchers found that destructive floods probably will come more frequently than thought.
- The tree-rings suggest that the recent decades (particularly from the 1950s to 1980s) were unusually dry.
- Similarly, climate models suggest that the future will likely be wetter due to our emissions of carbon-dioxide.
- Taken together, this suggests that we might be underestimating the current frequency of 'wet years' and in turn of flooding
- If one projects from modern discharge records, the study found, one would be underestimating the danger by 24% to 38%.

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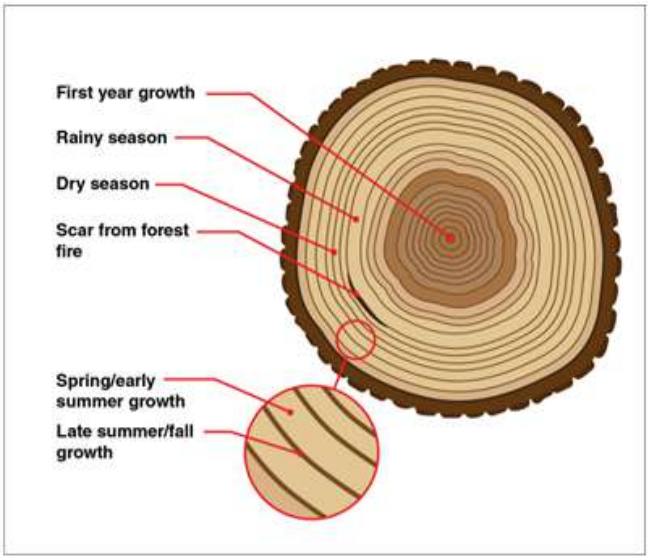
Why tree rings



- Tree rings grow wider in years when soil moisture is high. Indirectly, wider rings reflect more rainfall and higher river runoff.
- As trees grow they incorporate information about the environmental conditions they are living in their annual growth rings.
- Trees in the region grow more and put on wide rings in wet monsoon years.
- Conversely in dry monsoon years (or droughts) they grow less and put on narrow rings.
- Since some of these trees can live for a long time, by taking a small, pencil-thin tree-core from these trees and measuring their rings under a microscope we can learn more about climate conditions for the past several centuries.
- Ancient trees were sampled at 28 sites in Tibet, Myanmar, Nepal and Bhutan, at sites close enough to be affected by the same weather systems as the Brahmaputra watershed.
- Analysing the rings, the scientists built a 696-year chronology (1309 to 2004).
- From historical records going back to the 1780s, the researchers found that the widest rings coincided with major flood years.
- From this, they extrapolated the yearly river discharge in the centuries preceding modern records.

5.7.Bihar Plans Migratory Bird Festival

- Bihar is holding a bird festival for the first time as part of its initiative to save migratory birds that arrive in the state in large numbers every year.
- The three-day festival is being organised in eastern Bihar's Bhagalpur district and will tentatively start from December 11, 2020.
- The festival is being jointly organised by the Bhagalpur forest division, non-profit Bombay Natural History Society and the local Mandar Nature Club.
- Selection of Bhagalpur for the bird festival held special significance because of the 60-kilometre-long stretch of the Vikramshila Dolphin Sanctuary between Sultanganj and Kahalgaon had long been a hub of migratory birds.
- Migratory birds normally come during November and stay till March, finding the region favourable for spending the winter.
- Prime objective behind holding the bird festival is to create awareness among people about the importance of migratory birds.
- Various programmes will be organised during the three-day festival. One of them will be a 'bird racing' programme involving finding birds, their habitats and their ecology.

- Other programmes during the bird festival include a presentation on birdlife and gathering public opinion on setting bird ringing stations in Bhagalpur.
- The 'ringing of birds' involves trapping them in nets and snares. Subsequently, they are weighed and their details logged before a metal ring inscribed with a unique number is tied to their tibia bone.
- This helps birdwatchers and professional conservationists log their presence across the globe.
- Some prominent migratory birds arriving in Bhagalpur include bar-headed goose, steppe eagle, Ferruginous duck, Eurasian curlew, white wagtail, great crested grebe, common greenshank and Eurasian coot.
- Such initiatives could put a check on incidents of bird poaching in the state.
- Poaching of migratory birds has been quite rampant in Bihar as they fetch a lot of money for bird catchers.
- They are mostly sold to lovers of wild game for prices ranging between Rs 500 and Rs 1,500.

5.8.India's renewable energy park on its border with Pakistan

- Context: On December 15, Prime Minister will travel to Kutch to lay the foundation stone for a 30,000 MW (megawatt) hybrid renewable energy park close to the Indo-Pak border in Kutch district. The project is billed as the largest of its kind in the world.

What is this hybrid renewable energy park taking shape in Gujarat?

- With the Government of India committing itself to installing 175 GW of renewable energy capacity by 2022, the Gujarat government identified 1,00,000 hectares of wasteland near Khavda, 72 km north of Bhuj, close to the international border with Pakistan in Kutch, for an energy park.
- In April 2020, after taking into consideration the requirements of the defence forces, the Ministry of Defence (MoD) gave its approval to use 72,600 hectares of the identified land to build the park.
- The renewable energy park will have two zones:
  - ✓ 49,600-hectare hybrid park zone that will accommodate wind and solar power plants of 24,800 MW capacity;
  - ✓ An exclusive wind park zone spread over 23,000 hectares.

How close is this project to the Indo-Pak border?

- The project site is about 25 km from Khavda, which is the last point that can be accessed by civilians in the area.
- The exclusive wind park zone will come up within 1-6 km of the international border.
- The hybrid park zone will be located 6 km from the border.
- The Border Security Force is already present in the area.
- The site has been chosen because this is a complete wasteland.
- Secondly, if you put windmills near the border, they also act as a boundary.

- The entire 23,000 ha at the exclusive wind zone park has been allotted to Solar Energy Corporation of India (SECI) to set up wind projects under the competitive bidding route policy.
- The selected developers have to develop 50 per cent of the total generation capacity in the next three years, and finish the project in five years.
- Power Grid Corporation of India will evacuate the power produced at this park.

5.9.Committee for Implementation of Climate Change Targets

- The Centre has set up a committee which will oversee the implementation of climate change targets that India has committed to under the 2015 Paris Agreement.
- The Ministry of Environment, Forest and Climate Change (MoEFCC) issued a Gazette notification on forming a high-level inter-ministerial Apex Committee for Implementation of Paris Agreement (AIPA).
- The purpose of the AIPA is to generate a coordinated response on climate change matters which ensures that India is on track to meet its obligations under the Paris Agreement, including its Nationally Determined Contributions (NDC's).
- India has made eight commitments under the NDC, which has three quantitative goals.
  - ✓ Reduction in the emissions intensity of gross domestic product (GDP) by 33-35 per cent over 2005 levels by 2030.
  - ✓ Achieving about 40 per cent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.
  - ✓ Creating an additional carbon sink of 2.5 to 3 billion tonne of carbon dioxide equivalent through additional forest and tree cover by 2030.

- AIPA would operate as a national authority to regulate carbon markets in India, formulate guidelines for consideration of projects or activities, issue guidelines on carbon pricing, market mechanism, and other similar instruments that have a bearing on climate change and NDCs.
- It will also take note of the contribution made by the private sector as well as multi- and bi-lateral agencies in the field of climate change and provide guidance for aligning their climate actions with national priorities.
- The AIPA will have members from 14 ministries and will be chaired by the MOEFCC secretary.

- The constituent ministries include health, power, renewable energy, finance, science & technology, jal shakti, earth sciences, urban affairs, rural development, commerce & industry, apart from the government's policy think-tank, the NITI Aayog.

5.10.Cheetah: The Comeback

- Dehradun-based Wildlife Institute of India (WII) has started the process of evaluating sites to reintroduce cheetah to India's wilds.
- The cheetah was declared extinct from India in 1952.
- The animal is considered vulnerable under the International Union for Conservation of Nature's (IUCN) red list of threatened species, with a declining population of less than 7,000 found primarily in African savannas.
- Maharaja Ramanuj Pratap Singh Deo of Koriya is believed to have hunted and shot the last three recorded Asiatic cheetahs in India in 1947.
- Now, over 70 years later, the fastest land animal appears set to make a comeback in India.
- In 2009, the then minister for environment and forests, had initiated the Cheetah Reintroduction Project, but it was stayed by the Supreme Court in 2012 on the grounds that the African cheetah was an alien and exotic species and because the National Board for Wildlife, the apex wildlife body in the country, had not been consulted in the matter.
- In January 2020, though, after the National Tiger Conservation Authority (NTCA) filed a petition, the Supreme Court finally allowed the Centre to introduce the African cheetah to a suitable habitat in India.
- A committee under the Ministry Of Environment And Forests (MoEF), has been set up under the orders of the apex court to monitor the implementation of the project.
- The committee has asked the WII to carry out a technical evaluation of all possible sites.
- Madhya Pradesh, Rajasthan and Bihar are eager to host the big cats in their respective forest reserves, and a fourth state, Gujarat, is still evaluating sites.
- While Madhya Pradesh and Rajasthan were part of the original plan, Bihar is a newly involved state.
- The MoEFCC had written to all states to come up with a proposal for potential sites.
- The Rajasthan forest department has proposed the Shahgarh Bulge near Jaisalmer on the India-Pakistan border, which was under consideration in the earlier version of the plan too.
- However, the Ministry Of Defence has expressed concerns over allowing tourist movement so close to the border. Plus, the area is also used by the defence forces for strategic movement and they are reluctant to let the cheetah introduction disturb that. Besides, it is also a site for oil and gas exploration, which may not be conducive to cheetah movement.
- Among other potential sites was Bihar, offering the Kaimur district on its southwestern border as a potential site. The region is said to have a substantial black buck population that would serve as prey base for the cheetah.
- The tourism potential of the cheetah project is not lost on the states. The reintroduction would be as much an economic operation as a conservation operation.

- The cheetahs would promote tourism in the area, create jobs and income for locals.
- What tigers did for protection of forests, cheetahs will do for grasslands that are under immense threat
- The Union government, too, has shown considerable interest in the project and a Rs 2.4 crore outlay was made for the Cheetah Project recently.

5.11.Eco-ducts

- Context: Ramnagar Forest Division in Nainital district, Uttarakhand, recently built its first eco-bridge for reptiles and smaller mammals.
  - ✓ Eco-ducts or eco-bridges aim to enhance wildlife connectivity that can be disrupted because of highways or logging.
  - ✓ These include canopy bridges (usually for monkeys, squirrels and other arboreal species); concrete underpasses or overpass tunnels or viaducts (usually for larger animals); and amphibian tunnels or culverts.

- ✓ Usually these bridges are overlaid with planting from the area to give it a contiguous look with the landscape.
- ✓ The National Tiger Conservation Authority, New Delhi, had identified three major sites that were cutting across animal corridors, including National Highway 37 through the Kaziranga-KarbiAnglong landscape in Assam, and State Highway 33 through the Nagarhole Tiger Reserve in Karnataka.
- ✓ One of the largest underpasses – 1.4 km – for animal conservation is India is being built along the Madhya Pradesh-Maharashtra border.
- ✓ Other proposals include the Chennai-Bangalore National Highway, in the Hosur-Krishnagiri segment, near reserve forests for elephant crossings, and in the Tadoba-Andhari Tiger Reserve in Chandrapur, Maharashtra.

Importance of Eco Bridges in Biodiversity Management

- To prevent genetic isolation of fragmented flora and fauna populations, the bridge would encourage the interaction of wildlife by facilitating movement between the once separated forests and effectively expand habitat, mating and foraging ranges of flora and fauna.
- With wildlife crossing the expressway from one nature reserve to another, the chances of pollination and dispersion of rare native plants could greatly increase.
- Eco-bridges would also bring about greater interaction between individuals leading to a healthy exchange of genetic materials, thereby reducing the occurrence of inbreeding and increasing the long-term survival of our native species.
- Providing crossing infrastructure at key points along transportation corridors is known to improve safety, reconnect habitats and restore wildlife movement.

5.12.Eluru mystery disease

- Context: A preliminary report of All India Institute of Medical Sciences (AIIMS), Delhi, has found traces of heavy metals lead and nickel in at least 10 blood samples collected from patients from different places in Eluru town in West Godavari District in Andhra Pradesh.
  - ✓ The AIIMS team conducted the blood tests after at least 550 people fell sick in Eluru town due to an undiagnosed illness.
  - ✓ The results indicate lead and nickel content in drinking water or/and milk as the possible reason behind people falling ill.
  - ✓ E-Coli in water was found to be normal while culture test of cerebral spinal fluid turned negative for known viruses and bacteria.

5.13.Carcass of wild elephant in Assam tests positive for Anthrax

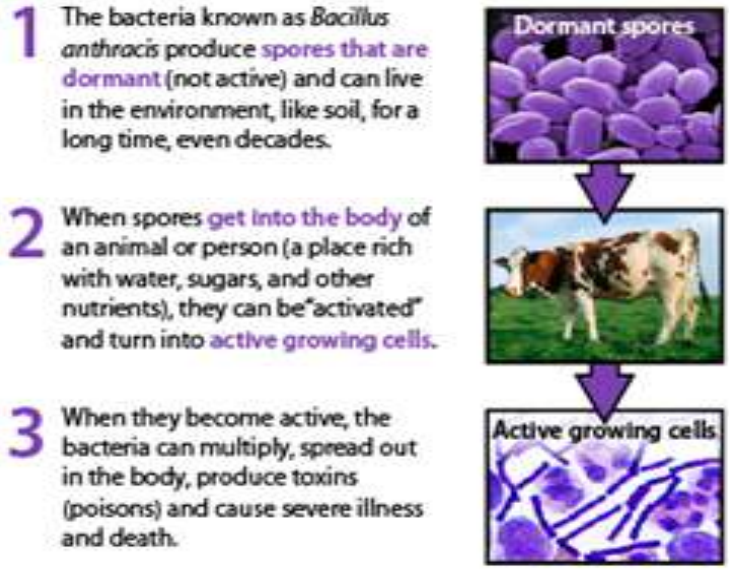
Context: The carcass of a wild elephant found inside Joypur reserve forest in Assam's Dibrugarh district last week has tested positive for Anthrax: Wildlife Trust of India (WTI).

- The highly infectious disease which is caused by the bacteria called 'Bacillus anthracis' had earlier been detected in cattle in the state, this is likely to be the first confirmed case of Anthrax in wild elephants in Assam.

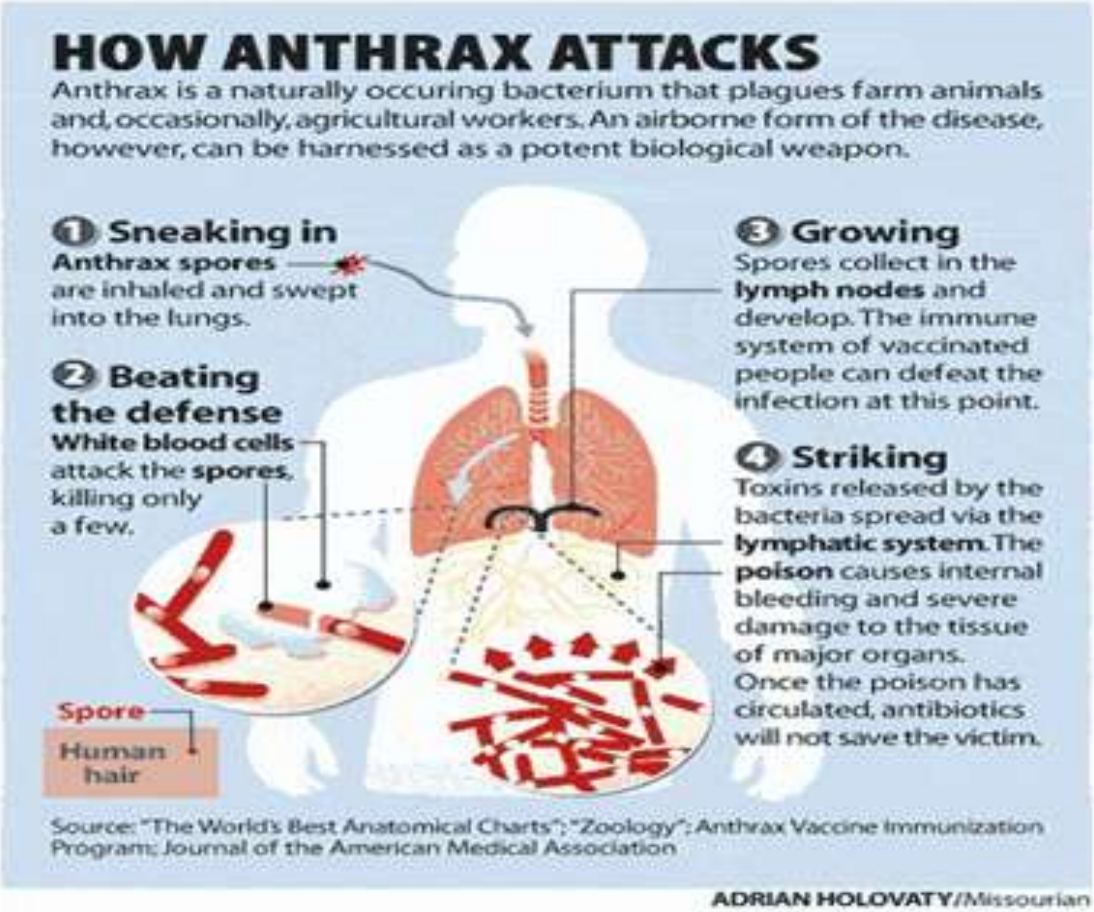
What is anthrax?

Anthrax is an acute infectious disease caused by the spore-forming bacterium *Bacillus anthracis*. Anthrax most commonly occurs in wild and domestic lower vertebrates (cattle, sheep, goats, camels, antelopes, and other herbivores), but it can also occur in humans when they are exposed to infected animals or tissue from infected animals.

- Forest officials had found the carcass of a sub-adult female aged nearly 10 years in the Soraipung range of the forest on December 3.
- Two days later, carcass of another female elephant aged around 18-20 years was found few hundred metres away from the spot where the first carcass was found.
- Both elephants are believed to be from the same herd.
- Usually, carcasses of wild elephants are buried, but since forest officials suspected the deaths to be due to Anthrax, the two elephants were cremated using safety measures.



Nickel	Mining, production, electroplating	Pulmonary oedema, lung cancer, nasal cavity cancer
Silica	Mining and quarrying, stone cutting, construction, sand blasting	Silicosis, fibrosis, silicotuberlosis
Talc	Rubber industry, cosmetics	Talcosis, fibrosis
Tantallum carbide	Manufacture and sharpening of cutting tools	Hard metal disease, hyperplasia of bronchial epithelium, fibrosis
Tin	Mining, tin production	Stanosis
Tungsten carbide	Manufacture and sharpening of cutting tools	Hard metal disease, hyperplasia of bronchial epithelium, fibrosis
Vanadium	Steel manufacture	Irritation, bronchitis

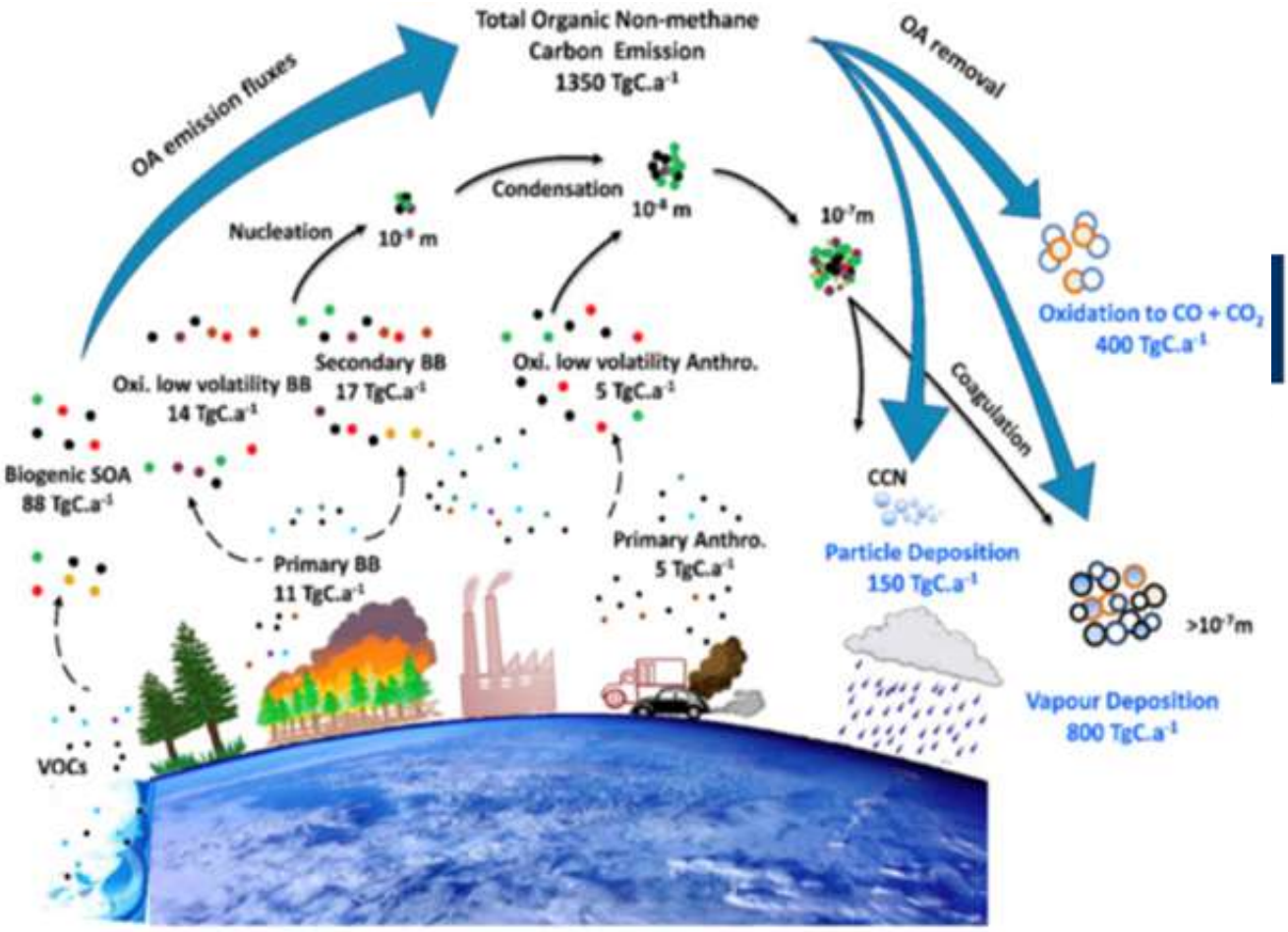


5.14.Emission Gap Report 2020

- Context: The United Nations Environment Programme (UNEP) released its annual Emissions Gap Report 2020.
  - ✓ The report states that the year 2020 would be one of the warmest years on record.
  - ✓ The annual report from UNEP measures the gap between anticipated emissions and levels consistent with the Paris Agreement goals of limiting global warming this century to well below 2°C and pursuing 1.5°C.
  - ✓ Below are the findings from the Emission Gap Report 2020 on key aspects:
- Record high GHG emissions: "Global GHG emissions continued to grow for the third consecutive year in 2019, reaching a record high of 52.4 Gigatonne carbon equivalent (GtCO2e) (range: ±5.2) without land-use change (LUC) emissions and 59.1 GtCO2e (range: ±5.9) when including LUC."
- Record carbon emission: "Fossil carbon dioxide (CO2) emissions (from fossil fuels and carbonates) dominate total GHG emissions including LUC (65 per cent) and consequently the growth in GHG emissions. Preliminary data suggest that fossil CO2 emissions reached a record 38.0 GtCO2 (range: ±1.9) in 2019."
- Forest fires increasing GHG emissions: "Since 2010, GHG emissions without LUC have grown at 1.3 per cent per year on average, with preliminary data suggesting a 1.1 per cent increase in 2019. When including the more uncertain and variable LUC emissions, global GHG emissions have grown 1.4 per cent per year since 2010 on average, with a more rapid increase of 2.6 per cent in 2019 due to a large

increase in vegetation forest fires. LUC emissions account for around 11 per cent of the global total, with the bulk of the emissions occurring in relatively few countries."

- G20 countries account for bulk of emissions: Over the last decade, the top four emitters (China, the United States of America, EU27+UK and India) have contributed to 55 per cent of the total GHG emissions without LUC. The top seven emitters (including the Russian Federation, Japan and international transport) have contributed to 65 per cent, with G20 members accounting for 78 per cent. The ranking of countries changes dramatically when considering per capita emissions.
- Is the GHG emission rate slowing? "There is some indication that the growth in global GHG emissions is slowing. However, GHG emissions are declining in Organisation of Economic Cooperation and Development (OECD) economies and increasing in non-OECD economies. Many OECD economies have had a peak in GHG emissions, with efficiency improvements and growth in low-carbon energy sources more than offsetting the growth in economic activity. Despite improving energy efficiency and increasing low-carbon sources, emissions continue to rise in countries with strong growth in energy use to meet development needs."
- On consumption-based emissions: "There is a general tendency that rich countries have higher consumption-based emissions (emissions allocated to the country where goods are purchased and consumed, rather than where they are produced) than territorial-based emissions, as they typically have cleaner production, relatively more services and more imports of primary and secondary products. In the 2000s, the gap between consumption and production was growing in rich countries but stabilised following the 2007–2008 global financial crisis. Even though rich countries have had higher consumption-based emissions than territorial-based emissions over the last decade, both emission types have declined at similar rates."
- Did the COVID-19 pandemic impact the emission level? "CO2 emissions could decrease by about 7 per cent in 2020 (range: 2–12 per cent) compared with 2019 emission levels due to COVID-19, with a smaller drop expected in GHG emissions as non-CO2 is likely to be less affected. However, atmospheric concentrations of GHGs continue to rise."
- Which sector reported the lowest dip in emission due to pandemic? "The reduction in GHG emissions in 2020 due to COVID-19 is likely to be significantly larger than the 1.2 per cent reduction during the global financial crisis in the late 2000s. Studies indicate that the biggest changes have occurred in transport, as COVID-19 restrictions were targeted to limit mobility, though reductions have also occurred in other sectors."
- What about other GHGs (excluding carbon dioxide) level? "Although CO2 emissions will decrease in 2020, the resulting atmospheric concentrations of major GHGs (CO2, methane (CH4) and nitrous oxide (N2O)) continued to increase in both 2019 and 2020. Sustained reductions in emissions to reach net zero CO2 are required to stabilise global warming, while achieving net-zero GHG emissions will result in a peak then decline in global warming."
- Are countries on track to attain net zero level? "At the time of completing this report, 126 countries covering 51 per cent of global GHG emissions have net-zero goals that are formally adopted, announced or under consideration. If the United States of America adopts a net-zero GHG target by 2050, as suggested in the Biden-Harris climate plan, the share would increase to 63 per cent."



5.15.Aerosols in Indo-Gangetic Plain have led to increased incidents of high rainfall in the Himalayan foothills

- Context: Scientists have found that aerosols like black carbon and dust, which makes the Indo-Gangetic Plain one of the most polluted regions of the world, have led to increased incidents of high rainfall events in the foothills of the Himalayan Region.
- The Indo-Gangetic Plain is located South and upwind of the Himalayan foothills.
- The region is associated with high aerosol loading, much of which is black carbon and dust, and thus provides an opportunity for studying how aerosol affects extreme rainfall events, particularly when air mass is forced from a low elevation to a higher elevation as it moves over rising terrain technically called orographic forcing.
- A team of researchers from National Institute of Technology Rourkela, Leipzig Institute for Meteorology (LIM), University of Leipzig, Germany, Indian Institute of Technology Madras, Indian Institute of Technology Kanpur supported by the Department of Science & Technology, under DST Climate Change program have highlighted the crucial role of the aerosol direct radiative effect on high precipitation events over the Himalayan region.
- They showed that particulate emissions can alter the physical and dynamical properties of cloud systems and, in turn, amplify rainfall events over orographic regions downwind of highly polluted urban areas.

- The study used 17 years (2001–2017) of rainfall rate, aerosol measurements called aerosol optical depth (AOD), meteorological reanalysis fields such as pressure, temperature, and moisture content at different altitudes are used to compute the thermodynamic variable "moist static energy" and outgoing long-wave radiation from Indian region to investigate high precipitation events on the foothills of the Himalayas.

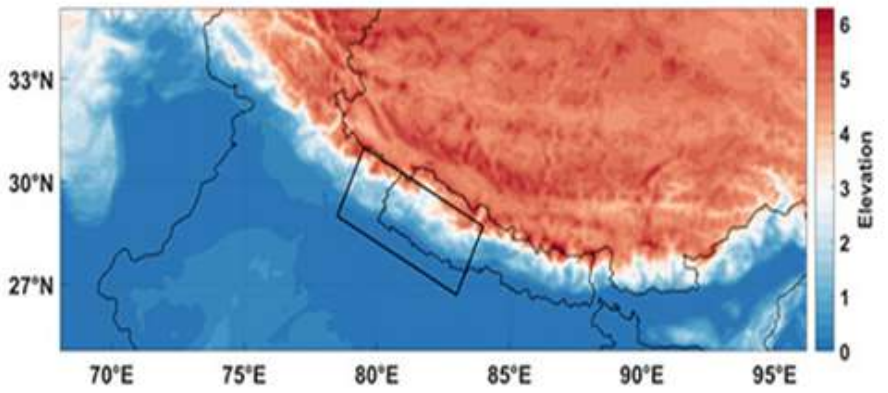


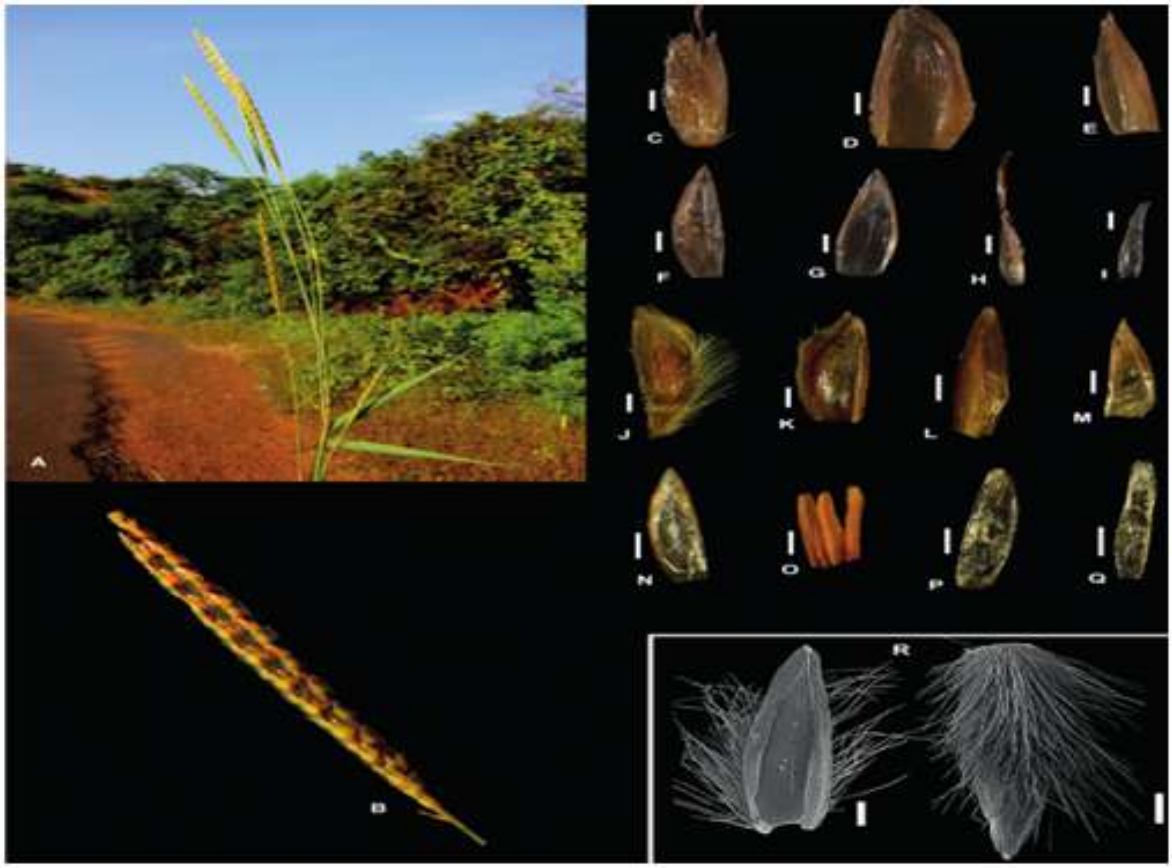
Figure 1. Map of Global Multi-resolution Terrain Elevation Data 2010 (GMTED2010) in kilometers, provided by the US Geological Survey. Thin black lines mark country borders. The black rectangle marks the domain on the foothills of the Himalayas that was used in this study.

- The team found clear associations between high precipitation events, high aerosol loading, and high moist static energy (MSE) values (Moist static energy of an air mass includes the potential energy due to its height above the ground and the latent heat due to its moisture content).
- The findings also highlight the crucial role of the radiative effect of aerosol on high precipitation events over the Himalayan region.
- The results of the study indicate that aerosols can play a vital role in exciting high precipitation (HP) events over the Himalayas during the monsoon season. Thus, aerosols, including chemistry, are essential to consider when forecasting HP events over the Himalayan region in regional modelling studies.

5.16.Muraingrass

- A new species of Indian Muraingrasses known for their ecological and economic importance, such as fodder, have been spotted by scientists in Goa in the Western Ghats.
- The species has adapted to survive harsh conditions, low nutrient availability, and blossoms every monsoon.
- Globally 85 species are known from Ischaemum, of which 61 species are exclusively found in India.
- The Western Ghats have 40 species with the highest concentration of the genus.
- Agharkar Research Institute (ARI), Pune, an autonomous institute of the Department of Science & Technology, has been exploring the biodiversity of the Western Ghats for last few decades.
- They discovered a novel species named Ischaemumjanarthanamii from plateaus of Western Ghats of Goa.
- The species was named Ischaemumjanarthanamii in honour of Prof. M. K. Janarthanam, Professor of Botany, Goa University, for his contribution to the Indian grass taxonomy and documentation of the floristic diversity of Goa state.
- The first collection of this new species was made in the 2017 monsoon.

- The population was kept under observation for the next two years to confirm the consistency of its characters.
- Morphological and molecular data of the species were used to confirm the novelty of the species.
- Ischaemumjanarthanamii grows on low altitude lateritic plateaus in the outskirts of Bhagwan Mahavir National Park, Goa.
- The vegetation is exposed to extreme climatic conditions like desiccation in drier months and soils with low nutrient availability.
- However, withstanding these, the species has adapted to survive harsh conditions and blossom every monsoon.



5.17.Why are villagers in Maharashtra's Dahanu objecting to the Vadhavan port project

- Context: Villagers in Vadhavan in Maharashtra's Dahanu taluka, about 131 km from Mumbai, came out in protest against a biodiversity survey commissioned by the Jawaharlal Nehru Port Trust (JNPT) for the construction of the Vadhavan Port that received in-principle approval from the Union Cabinet in February.

Why are the villagers in Vadhavan opposed to the construction of the port?

- Locals are protesting against a biodiversity survey undertaken by officials of JNPT and scientists from the National Institute of Oceanography for the construction of a port at Vadhavan.
- They believe construction of port will be detrimental to the environment and their livelihoods.

- Dahanu is one of the eight talukas in Maharashtra's newest district of Palghar, which was created in 2014.
- But over two decades prior to that, the Union Ministry of Environment and Forests (MoEF) had, under the provisions of The Environment (Protection) Act, 1986, declared Dahanu an "ecologically fragile area" and imposed restrictions on setting up of industries that have a detrimental effect on the environment.
- Stressing on the ecological sensitivity of the area, the locals have said that the construction of the port will not only hurt the flora and fauna of Dahanu, but will also disrupt allied activities like fishing and farming.
- Dahanu is only one of three places in India where liveconches can be found, and which gives the seafront of Vadhavan the name of "Shankhodar".
- The rocks, moss, and corals in the sea, he said, are favourable not just for fishing but also for fish seeding.
- The protesters also said that the survey team of five, including two scientists, could not have carried out the survey without informing the Gram Panchayat of Vadhavan that passed a resolution against the proposed port in 2014.
- The protesters and environmentalists say that the survey should have been carried out with permission from the Dahanu Taluka Environment Protection Authority, or DTEPA, formed in 1996 following orders of the Supreme Court.
- The MoEF had last year urged the court to dissolve the authority, and the matter remains pending.

What does the Vadhavan port project entail?

- The port project is part of the Centre's Sagarmala initiative that aims to make Indian ports major contributors to the country's GDP.
- The JNPT and the Maharashtra Maritime Board are development partners for the project.
- The Vadhavanport,will be India's 13th major port, has been planned by the JNPT as an 'All Weather, All Cargo' satellite port to enhance capabilities in handling deep draft ships and larger vessels.
- With an increase in container shipping, the port, which will be close to the JNPT in Uran, Navi Mumbai, is also expected to handle the spillover in container vessel traffic at the Jawaharlal Nehru Port, which is India's top container port.

How did the port get approval in an ecologically fragile area?

- In February, the Union Cabinet gave in-principle approval for the construction of the port.
- In June, after the DTEPA raised an objection to the project, the MoEF informed the authority that the port is allowed in the taluka.
- The Shipping Ministry had, while seeking the Union Cabinet's in-principle approval in February, stated that there was no restriction on constructing a port in Vadhavan — arguing that a port has no manufacturing or processing activity, and is therefore, not an industry; rather it is an infrastructure project.

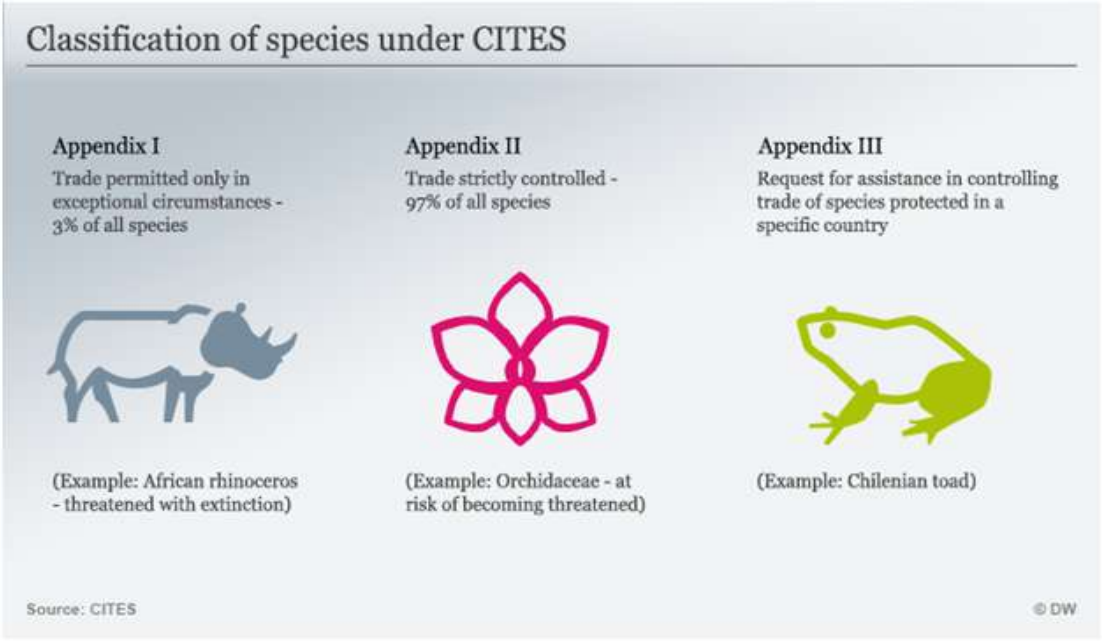
- In a statement the JNPT said that as part of the order issued by the MoEF on June 8, 2020, it had recognised that "services rendered by a Port are not classified as 'RED' category and declared that Port under no circumstances is an industry.
- Ports provide services to the Exim trade thereby they do not contribute to the pollution in and around the region of Vadhavan.

5.18.Exotic pets

- An exotic pet is a rare or unusual animal pet:
  - ✓ An animal kept within human households which is relatively unusual to keep or is generally thought of as a wild species rather than as a pet.
  - ✓ The Supreme Court recently upheld an Allahabad High Court order granting immunity from investigation and prosecution if one declared illegal acquisition or possession of exotic wildlife species.

What is the government's voluntary disclosure scheme?

- The Ministry of Environment, Forest and Climate Change (MoEFCC) has come out with an advisory on a one-time voluntary disclosure scheme that allows owners of exotic live species that have been acquired illegally, or without documents, to declare their stock to the government between June and December 2020.
- With this scheme, the government aims to address the challenge of zoonotic diseases, develop an inventory of exotic live species for better compliance under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and regulate their import.
- In its current form, however, the amnesty scheme is just an advisory, not a law.



What kind of exotic wildlife are covered?

- The advisory has defined exotic live species as animals named under the Appendices I, II and III of the CITES.
- It does not include species from the Schedules of the Wild Life (Protection) Act 1972.

- So, a plain reading of the advisory excludes exotic birds from the amnesty scheme.
- CITES is an international agreement between governments to ensure that international trade in wild animals, birds and plants does not endanger them.
- India is a member.
- Appendices I, II and III of CITES list 5,950 species as protected against over-exploitation through international trade.
- Many of these animals, such as iguanas, lemurs, civets, albino monkeys, coral snakes, tortoises, are popular as exotic pets in India.

What is the process for disclosure under the scheme?

- The disclosure has to be done online through MoEFCC's Parivesh portal.
- The owner of the animal(s) will have to declare the stock as on January 1, 2020 to the Chief Wildlife Warden (CWLW) of the concerned state or Union Territory.
- This will be followed by a physical verification of the animals.
- The CWLW will have to issue an online certificate of possession of exotic live species within six months of the date of the voluntary disclosure.
- After the registration, it is mandatory for the owner to allow the CWLW with free access to the exotic species declared on any day for verification.
- Apart from this, the CWLW has to be informed about any new acquisition, death or change in possession of the animals within 30 days.
- The scheme has also specified guidelines for surrender of such animals to a recognised zoo.
- The owner will also have to provide the details of the species acquired, their numbers, and the address of the facility where they are housed.
- The Directorate of Revenue Intelligence (DRI), enforces anti-smuggling laws in India.
- According to World Wildlife Crime Report 2016 of the UN, criminals are illegally trading products derived from over 7,000 species of wild animals and plants across the world.
- In its first global report on the illegal wildlife trade, the Financial Action Task Force (FATF) described wildlife trafficking as a "global threat", which also has links with other organised crimes such as modern slavery, drug trafficking and arms trade.
- The illegal trade is estimated to generate revenues of up to $23 billion a year.
- India continues to battle wildlife crime, with reports suggesting that many times such species are available for trade on online market places.
- The Wildlife Crime Control Bureau is an organisation that is tasked with monitoring illegal trade.

5.19.India has achieved 21% of emissions intensity target

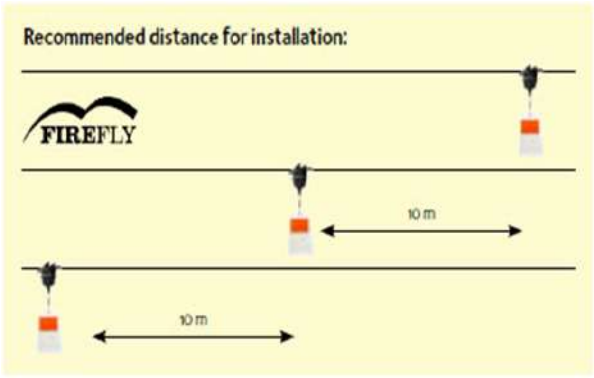
- Context: India is the only major G20 country that was on track towards keeping to its nationally determined commitments to halt runaway global warming.

- It had achieved 21% of its emissions intensity as a proportion of its GDP in line with its commitment to a 33-35% reduction by 2030.
- The Climate Ambition Summit is to be jointly hosted by the United Nations, the United Kingdom and France, in partnership with Chile and Italy to mark the fifth anniversary of the adoption of the Paris Agreement.
- Attending heads of states are expected to, but not obliged, declare enhanced commitments to prevent global temperature from rising beyond 1.5C.
- In 2015, ahead of the United Nations' significant climate conference in Paris, India announced three major voluntary commitments called the Nationally Determined Contributions (NDC):
  - ✓ Improving the emissions intensity of its GDP by 33 to 35 per cent by 2030 below 2005 levels
  - ✓ Increasing the share of non-fossil fuels-based electricity to 40 per cent by 2030
  - ✓ Enhancing its forest cover, thereby absorbing 2.5 to 3 billion tonnes of carbon dioxide.
- According to the International Institute of Sustainable Development, the summit is positioned as a "sprint to Glasgow," where the 26th session of the Conference of the Parties (COP 26) to the UN Framework Convention on Climate Change (UNFCCC) is scheduled to take place from 1–12 November 2021.
- Six of the world's top 10 emitters will be present: China, the European Union, India, Japan and Canada (plus two senior U.S. Governors). Notable absentee big polluters are Australia, Brazil, Indonesia and Mexico.
- The Paris Agreement, adopted at COP 21 in Paris, on 12 December 2015, constitutes a landmark agreement on climate change that seeks to limit global average temperature rise to well below 2°C above pre-industrial levels and endeavour to limit the increase to 1.5°C.
- The agreement, which entered into force on 4 November 2016, currently has 188 parties.
- All parties to it are expected to undertake ambitious efforts to support the agreement's goals and communicate their related intentions every five years in the form of NDCs.
- In the first round, 186 parties submitted their first NDC and two have since submitted a second one.
- As per the Agreement, each successive NDC must represent a progression beyond the country's previous NDC and reflect its highest possible ambition.

5.20.Rare Myristica Swamp Treefrog

- Myristica Swamp Treefrog, is a rare arboreal species endemic to the Western Ghats
- It bears the scientific name Mercuranamyristicapalustris.
- This has been recorded for the first time north of the Shencottah gap in Vazhachal Reserve Forest in Thrissur.
- The frog was first described in 2013 from the lowland Myristica swamps of Arippa, near Kulathupuzha Reserve Forest, in the western foothills of Agasthyamalai.
- These frogs are rare and elusive for the reason that they are arboreal and active only for a few weeks during their breeding season.

- During this season, there is a large aggregation of males that descend from the high canopy of the trees.
- The males vocalise in groups from the low perches in the swamps.
- They exhibit unique breeding behavior.
- The breeding season, unlike for other frogs, starts in the pre-monsoons season (May) and ends before the monsoon becomes fully active in June.



- Before the end of the breeding season, the female frogs along with their male counterparts descend to the forest floor.
- The female digs the mud and lays eggs in shallow burrows in mud.
- After breeding and egg-laying, they retreat back to the high canopies of the tree and remain elusive till next breeding season.
- Extended distribution of such rare frogs in the Western Ghats have conservation implications and provide a suitable niche for further studies on the diverse amphibian fauna of the Western Ghats

5.21.Bustard conservation

- Context: A proposal to put all power transmission lines passing through Great Indian Bustard (GIB) habitat underground did not elicit support from the Union Ministry of Power (MoP) and the Rajasthan government.
- The MoP said putting high-tension power cables above 33 kiloVolt underground was not feasible.
- The idea of putting the power transmission lines underground was one of the recommendations of the Dehradun-based Wildlife Institute of India (WII).
- WII was ordered by the NGT September 4, 2019 to come up with these recommendations.
- The MNRE also did not agree with WII's recommendation on disallowing new wind turbines and solar farms in the 13, 000 square kilometre priority GIB habitat in Rajasthan and Gujarat.
- The ministry, however, was of the view that an order could be issued by the Union environment ministry to clarify and map out the critical GIB area where no activity could take place.
- It was decided that WII would map the critical area and share it with the environment ministry, MoP, MNRE and the governments of Rajasthan, Gujarat, Madhya Pradesh, Maharashtra, Andhra Pradesh and Karnataka for further action.
- WII's other recommendations included the development of predator-proof enclosures 5-10 square kilometres in area as well as delineating priority GIB habitats outside Rajasthan's Desert National Park as 'eco-sensitive zones'.
- The National Green Tribunal now has ordered that all power transmission lines should be underground for new renewable power projects in marked habitats of the Great Indian Bustard.

- It also asked the Union Ministry of Environment, Forest and Climate Change (MoEF&CC) as well as concerned states to install bird diverters on "existing solar and wind power lines", preferably within four months.
- It has directed the ministry to ensure that environment impact assessments (EIA) of solar energy projects cover impacts on biological diversity.
- Green energy projects (wind, solar, etc) lie outside the purview of EIAs. They are considered green and their impact is not assessed, but they do impact biodiversity.
- Regarding the same, The Ministry of Environment Forest and Climate Change (MoEFCC) along with the Wildlife Conservation Society (WCS) India has come up with a unique initiative — a "firefly bird diverter" for overhead power lines in areas where Great Indian Bustard (GIB) populations are found in the wild.
- GIB is one of the most critically threatened species in India, with less than 150 birds left in the wild.
- A report by the Ministry, submitted to the National Green Tribunal in 2019, pointed out that power lines, especially high-voltage transmission lines with multiple overhead wires, are the most important current threat for GIBs in the Thar region, and are causing unsustainably high mortality in about 15% of their population.
- Firefly bird diverters are flaps installed on power lines.
- They work as reflectors for bird species like the GIB.
- Birds can spot them from a distance of about 50 meters and change their path of flight to avoid collision with power lines.
- Smaller birds can change their direction [swiftly] but for larger bird species, it is difficult because their body weight and other factors
- The diverters are called fireflies because they look like fireflies from a distance, shining on power lines in the night.
- The selected stretch is opposite the Pokhran Field Firing Range, which offers a safe habitat to a breeding population of GIBs outside the Desert National Park Sanctuary in Jaisalmer.
- Experts said that the innovative firefly diverter installation could serve as an alternative means to species conservation.
- Experts say only two districts in Rajasthan — Jaisalmer and Barmer — have a breeding GIB population in the wild.
- The bird can also be found in very small numbers in Gujarat, Madhya Pradesh, Karnataka, Maharashtra and Andhra Pradesh.

5.22.Marine protection falls short of the 2020 target to safeguard 10% of the world oceans.

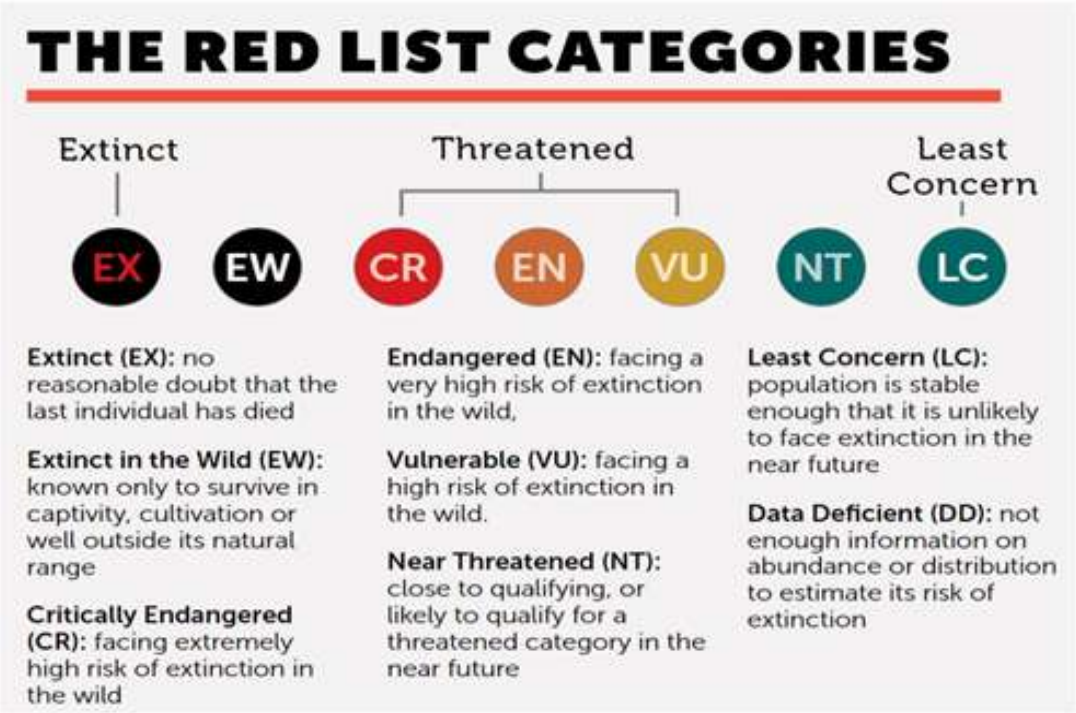
- Two-thirds of the world's oceans fall outside national jurisdictions — they belong to no one and everyone.
- These international waters, known as the high seas, harbour a plethora of natural resources and

millions of unique marine species.

- But they are being damaged irretrievably. Research shows unsustainable fisheries are one of the greatest threats to marine biodiversity in the high seas.
- According to a 2019 global assessment report on biodiversity and ecosystem services, 66 per cent of the world's oceans are experiencing detrimental and increasing cumulative impacts from human activities.
- In the high seas, human activities are regulated by a patchwork of international legal agreements under the 1982 UN Convention on the Law of the Sea (UNCLOS). But this approach is failing to safeguard the ecosystems we depend on.
- A decade ago, world leaders updated an earlier pledge to establish a network of marine protected areas (MPAs) with a mandate to protect 10 per cent of the world's oceans by 2020.
- But MPAs cover only 7.66 per cent of the ocean across the globe.
- Most protected sites are in national waters where it's easy to implement and manage protection under the provision of a single country.
- In the more remote areas of the high seas, only 1.18 per cent of marine ecosystems have been gifted sanctuary.
- The Southern Ocean accounts for a large portion of this meagre percentage, hosting two MPAs.
- The South Orkney Islands southern shelf MPA covers 94,000 square kilometres, while the Ross Sea region MPA stretches across more than 2 million square kilometres, making it the largest in the world.
- Currently, the world's largest marine protected area is in the Ross Sea region off Antarctica.
- The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) is responsible for this achievement.
- Unlike other international fisheries management bodies, the commission's legal convention allows for the closing of marine areas for conservation purposes.
- In 2017, the UN started negotiations towards a new comprehensive international treaty for the high seas.
- The treaty aims to improve the conservation and sustainable use of marine organisms in areas beyond national jurisdiction.
- It would also implement a global legal mechanism to establish MPAs in international waters.
- This innovative international agreement provides an opportunity to work across institutional boundaries towards comprehensive high seas governance and protection.
- • The final round of treaty negotiations is pending, delayed by the novel coronavirus disease pandemic and significant detail within the treaty's draft text remains undeveloped and open for further debate.

Lessons from Southern Ocean management

- CCAMLR comprises 26 member states (including the European Union) and meets annually to make conservation-based decisions by unanimous consensus.

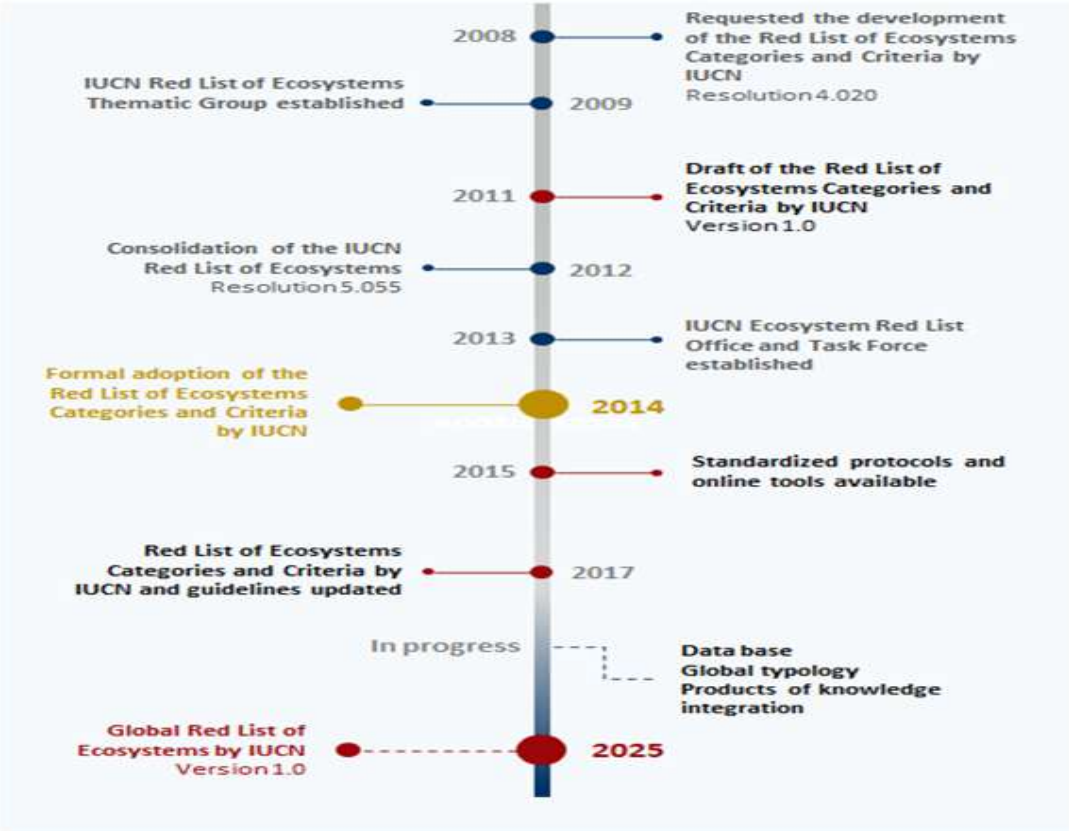


- In 2002, the commission committed to establishing a representative network of MPAs in Antarctica in alignment with globally agreed targets for the world's oceans.
- The two established MPAs in the high seas are far from an ecologically representative network of protection.
- In October 2020, the commission continued negotiations for three additional MPAs, which would meet the 10 per cent target for the Southern Ocean, if agreed.
- But not a single proposal was agreed.
- For one of the proposals, the East Antarctic MPA, this marks the eighth year of failed negotiations.
- Fisheries interests from a select few nations, combined with complex geopolitics, are thwarting progress towards marine protection in the Antarctic.
- CCAMLR's two established MPAs (in grey) are the South Orkney Islands southern shelf MPA and the Ross Sea region MPA.
- Three proposed MPAs (hashed) include the East Antarctic, Domain 1 and Weddell Sea proposals.
- CCAMLR's progress towards its commitment for a representative MPA network may have ground to a halt, but the commission has gained invaluable knowledge about the challenges in establishing MPAs in international waters.
- CCAMLR has demonstrated that with an effective convention and legal framework MPAs in the high seas are possible.

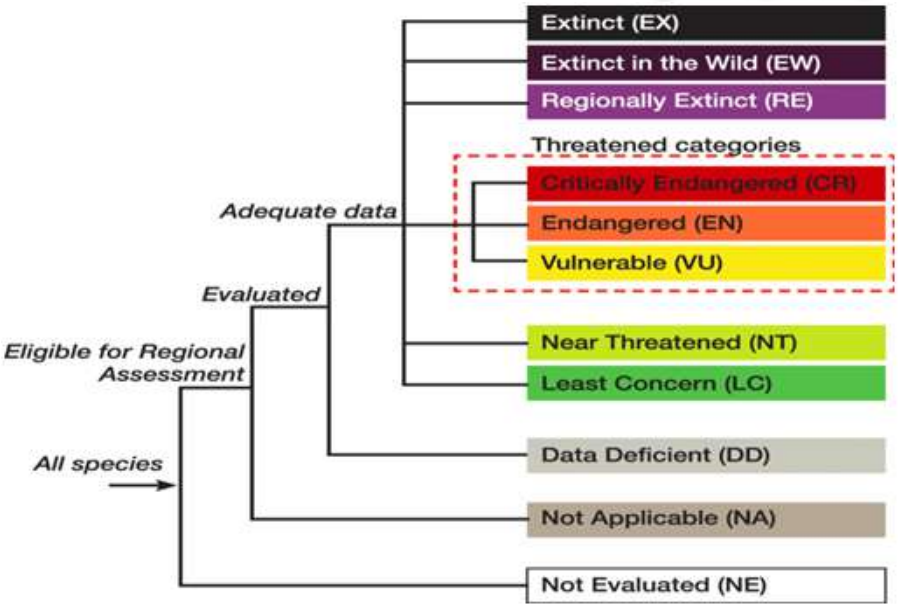
5.23.Update of the IUCN Red List of Threatened Species™

- An update to the International Union for Conservation of Nature's Red List of Threatened Species has declared 31 animal and plant species extinct.

- That total includes the lost shark, listed as critically endangered or possibly extinct, as it was last recorded in 1934.
- The lost shark's habitat in the South China Sea, one of the world's most exploited marine regions, has been extensively fished for more than a century.
- Out of 17 freshwater fish species in Lake Lanao and its outlet in the Philippines, 15 are now extinct and two are critically endangered or possibly extinct
- The extinctions were caused by predatory introduced species as well as overharvesting and destructive fishing methods.
- In Central America, three frog species have now been declared extinct.
- Another 22 frog species across Central and South America are listed as critically endangered or possibly extinct -- with the driver of the declines identified as chytridiomycosis disease, an infectious disease caused by a fungus that affects amphibians worldwide.
- In addition, all of the species of freshwater dolphin in the world are now threatened with extinction, with the addition of the tucuxi, a freshwater dolphin species found in the Amazon river system, to the list.
- The tucuxi population has been "severely depleted" by deaths linked to fishing gear, damming rivers and pollution.
- The priority actions to recover the species include eliminating the use of gillnets -- curtains of fishing



net that hang in the water, reducing the number of dams in its habitat and enforcing the ban on deliberately killing them.



- In the plant world, the ICUN has found that nearly a third of oak trees around the world are threatened with extinction, with the highest numbers in China and Mexico, followed by Vietnam, the U.S. and Malaysia.
- Land clearance for logging and agriculture are the most common threats, as well as invasive alien species and diseases, and climate change.
- Species that have recovered include the European bison, the largest land mammal in Europe, which has progressed from vulnerable to near-threatened.
- The population has grown from about 1,800 in 2003 to more than 6,200 in 2019 after surviving only in captivity in the early 20th century.
- It was reintroduced to the wild in the 1950s, and the largest subpopulations are found in Poland, Belarus and Russia.

- Currently, there are 47 free-ranging European bison herds, but they're largely isolated from one another and confined to suboptimal forest habitats.
- Only eight of the herds are large enough to be genetically viable in the long term, so the species will remain dependent on conservation efforts, such as moving them to more optimal, open habitats, and reducing conflicts with humans.
- The outlook for 25 other species has also improved, which demonstrates "the power of conservation"
- The growing list of extinct species is a "stark reminder that conservation efforts must urgently expand" and that conservation needs to become incorporated in all sectors of the economy to tackle global threats, such as unsustainable fisheries, land clearing for agriculture and invasive species.

6. Science & Technology

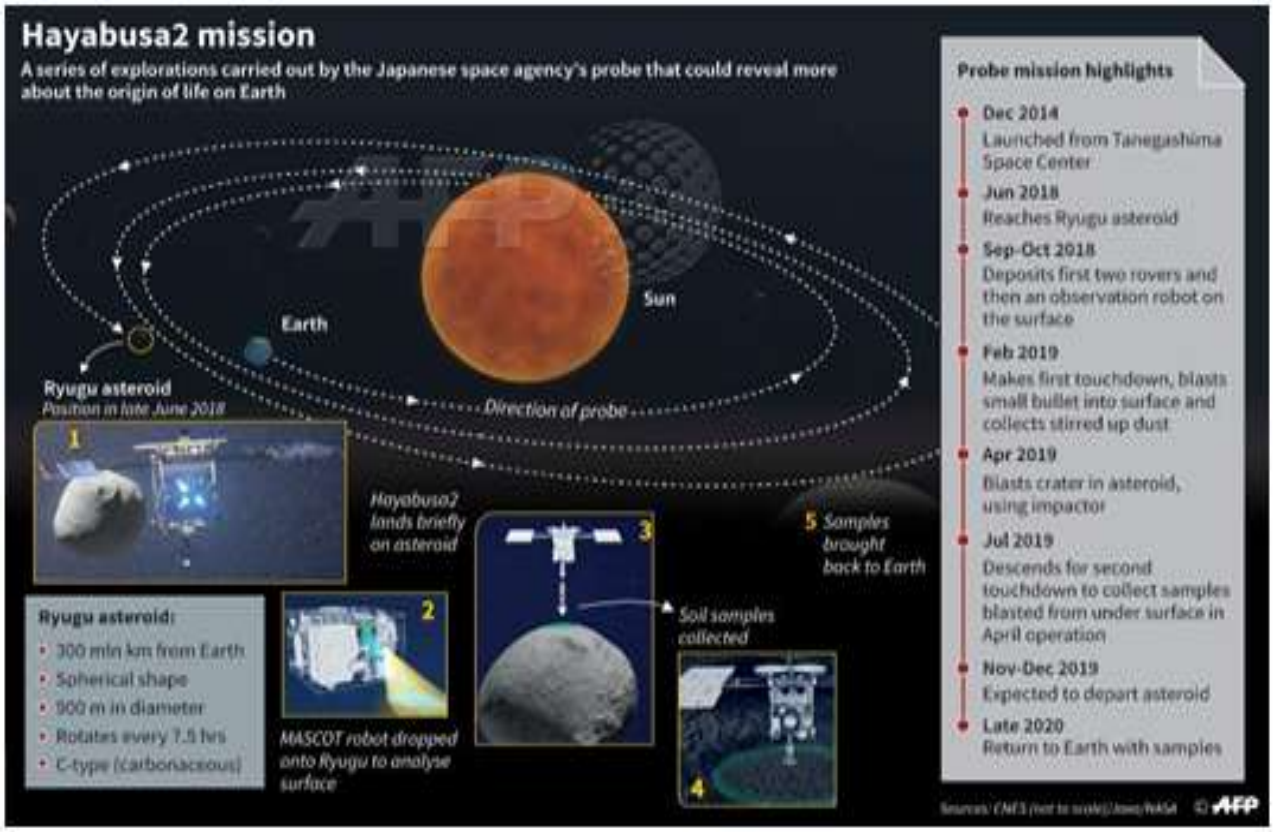
Click on the links given below to watch the following questions on YouTube

- Video 1
- Video 2
- Video 3
- Video 4

6.1.Japanese spacecraft carrying asteroid soil samples

- Context: A Japanese spacecraft is nearing Earth after a yearlong journey home from a distant asteroid with soil samples and data that could provide clues to the origins of the solar system.
- The Hayabusa2 spacecraft left the asteroid Ryugu, about 300 million kilometres (180 million miles) from Earth, a year ago and is expected to reach Earth and drop a capsule containing the precious samples in southern Australia on December 6.
- Scientists at the Japan Aerospace Exploration Agency believe the samples, especially those taken from under the asteroid's surface, contain valuable data unaffected by space radiation and other environmental factors.
- Scientists are especially interested in analyzing organic materials in the Ryugu soil samples.
- They are hoping to find clues to the origin of life on Earth by analyzing details of the organic materials brought back by Hayabusa2.
- JAXA, the space agency, plans to drop the capsule containing the samples onto a remote, sparsely populated area in Australia from 220,000 kilometres (136,700 miles) away in space, a big challenge requiring precision control.
- The capsule, protected by a heat shield, will turn into a fireball during re-entry in the atmosphere at 200 kilometres (125 miles) above ground. At about 10 kilometres (6 miles) above ground, a parachute will open to prepare for landing, and beacon signals will be transmitted to indicate its location.
- JAXA staff have set up satellite dishes at several locations in the target area to catch the signals, while also preparing marine radar, drones and helicopters to assist in the search and retrieval mission.
- Without those measures, a search for the pan-shaped capsule with a diameter of 40 centimeters (15 inches) would be an extremely difficult.
- For Hayabusa2, it's not the end of the mission it started in 2014. After dropping the capsule, it will return to space and head to another distant small asteroid called 1998KY26 on a journey slated to take 10 years.
- Hayabusa2 touched down on Ryugu twice, despite its extremely rocky surface, and successfully collected data and samples during the 1 years after it arrived there in June 2018.
- In the first touchdown in February 2019, it collected surface dust samples.

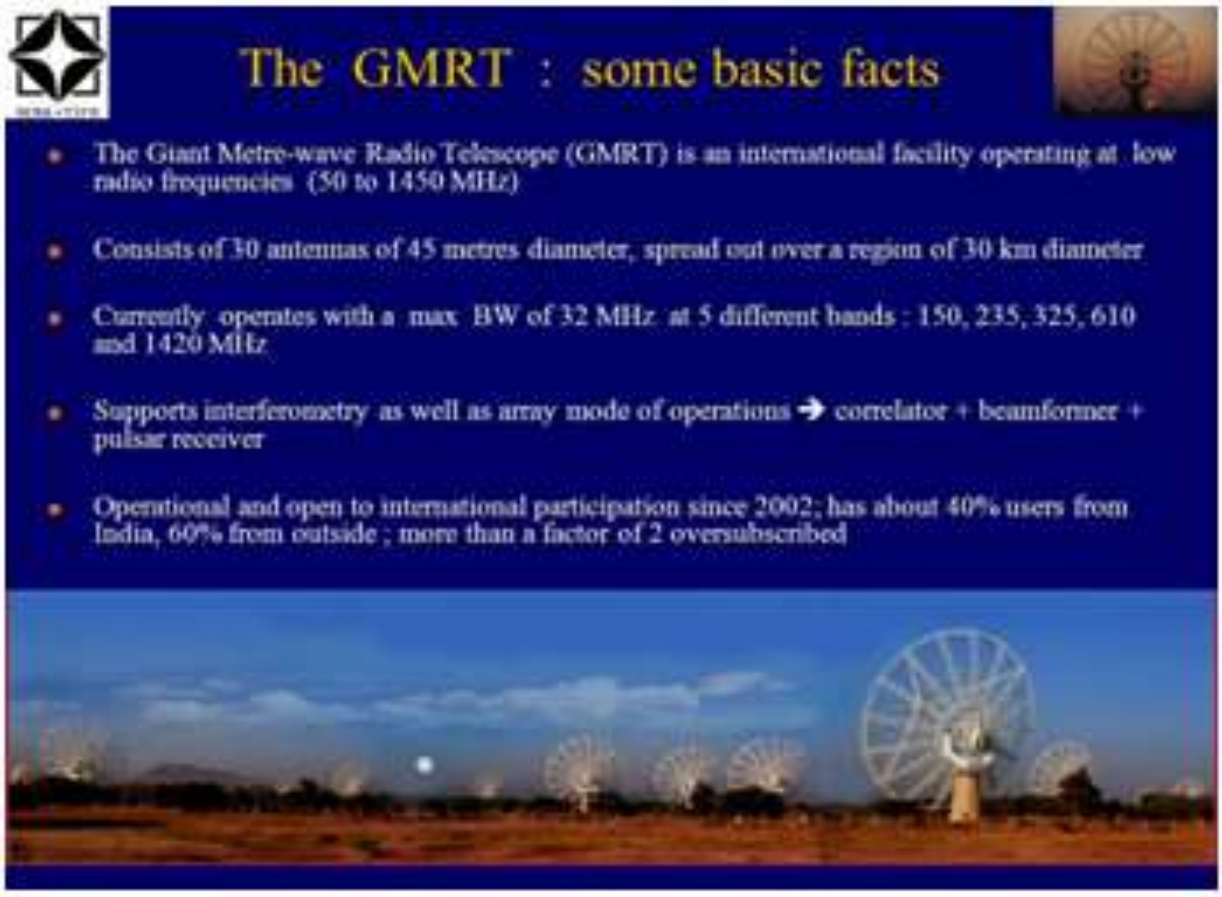
- In July, it collected underground samples from the asteroid for the first time in space history after landing in a crater that it had earlier created by blasting the asteroid's surface.
- Scientists said there are traces of carbon and organic matter in the asteroid soil samples. JAXA hopes to find clues to how the materials are distributed in the solar system and are related to life on Earth.
- Asteroids, which orbit the sun but are much smaller than planets, are among the oldest objects in the solar system and therefore may help explain how Earth evolved.
- It took the spacecraft 3 years to arrive at Ryugu, but the journey home was much shorter because of the current locations of Ryugu and Earth.
- Ryugu in Japanese means Dragon Palace, the name of a sea-bottom castle in a Japanese folk tale.



6.2.Giant Metrewave Radio Telescope

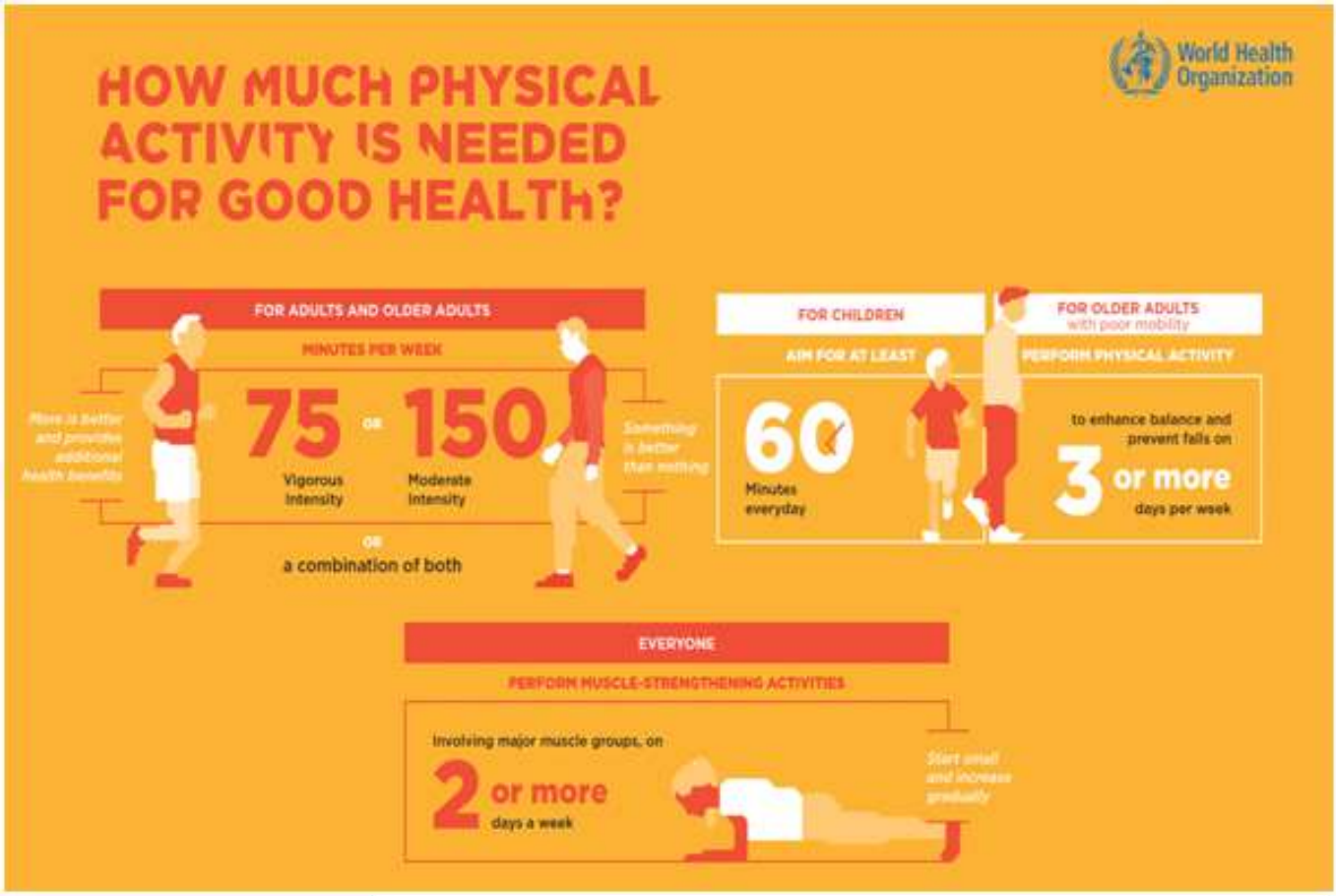
- The Giant Metre wave Radio Telescope (GMRT) has received the prestigious ''IEEE Milestone'' status that honours significant technical achievements and excellence in unique products, services, seminal papers and patents for the benefit of humanity, authorities from National Centre for Radio Astrophysics (NCRA).
- The Institute of Electrical and Electronics Engineers is the world's largest technical professional organization dedicated to advancing technology in all areas related to electrical and electronics engineering.
- IEEE has recognised 212 milestones all over the world for their scientific and engineering contributions.
- The GMRT is the third IEEE Milestone in India. It not only recognises contributions of scientists and engineers of India, but also helps attract young talent towards fundamental science and engineering.

- The previous two Indian IEEE milestones (recognized in 2012) were for pioneering work by Sir JC Bose in 1895 to demonstrate the generation and reception of radio waves, and for the Nobel prize-winning discovery by Sir CV Raman in 1928.
- The GMRT is among the largest and most sensitive low- frequency radio observatories in the world.
- It is operated by Pune-based NCRA, which is part of the Tata Institute of Fundamental Research, Mumbai.
- It consists of an array of 30 antennas of 45 metre diameter each with sophisticated electronics and computing for processing data.
- The GMRT was proposed in the late 1980s, built and made operational during the 1990s, and opened for use by the global astronomy community in 2002.

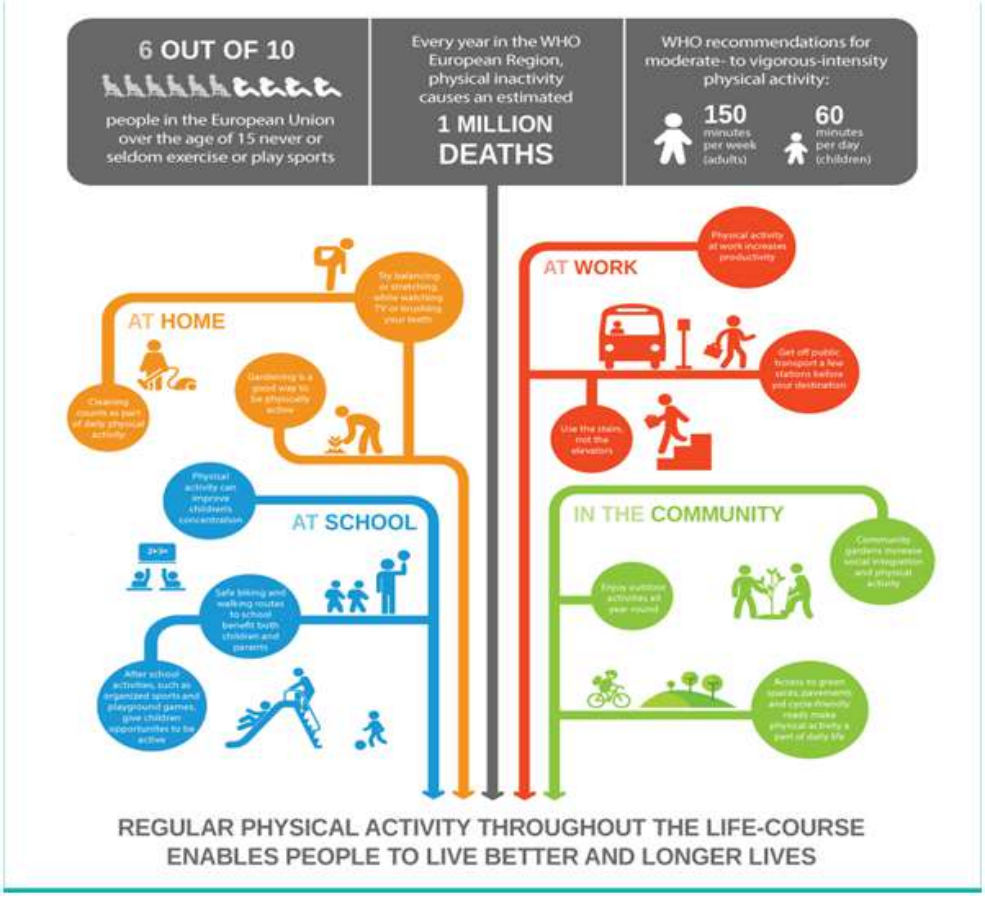


6.3.Physical activity guidelines 2020: WHO

- The World Health Organisation's Guideline Development Group (GDG) has recently updated and replaced the previous 2010 WHO recommendations on physical activity.
- The updated WHO 2020 Guidelines on Physical Activity and Sedentary Behaviour provide clear, evidence-based, recommendations on how much physical activity provides health benefits for different population groups and on the potential risks of sedentary behaviour.
- In 2018, the World Health Assembly (WHA) approved a new Global Action Plan on Physical Activity (GAPPA) 2018–2030 and adopted a new voluntary global target to reduce global levels of physical inactivity in adults and adolescents by 15% by 2030.



- As part of the WHA Resolution (WHA71.6), Member States requested WHO to update the 2010 Global Recommendations on Physical Activity for Health.
- The updated guidelines focus on children, adolescents, adults, older adults and, for the first time it includes specific recommendations on physical activity for pregnant and postpartum women and people living with chronic conditions or disability.



- Also for the first time, these WHO guidelines address the health impact of sedentary behaviour.

Available on App Store and Play Store
www.sleepyclasses.com
Call 6280133177

- The guidelines were developed in accordance with the processes set out in the WHO Handbook for Guidelines Development and commenced in 2019.

6.4.India, US nuclear energy partnership

- Context: India and the US have extended the memorandum of understanding for cooperation on nuclear energy by another decade. This was announced in a joint statement issued to mark 10 years of cooperation of the Global Centre for Nuclear Energy Partnership (GCNEP) between the two countries.
- The joint statement recognised India's commitment in November 2010 to establish the GCNEP with a vision to promote safe, secure, and sustainable nuclear energy for the service of mankind through global partnership.
- It also acknowledged the importance of nuclear security, including the security of radioactive sources, and called for actions to address continuing and evolving nuclear security challenges.
- This is with the objectives of advancing implementation of nuclear security commitments and building strengthened, sustainable and comprehensive global nuclear security architecture.

Nuclear materials, facilities

- The importance of security of nuclear materials and facilities was highlighted in the joint statement.
- This includes protection of radioactive sources including during transportation, combating illicit trafficking, nuclear forensics, nuclear security culture, information security, international cooperation, and synergy between nuclear safety and security.
- The central role of the International Atomic Energy Agency in strengthening the nuclear security framework globally was also emphasised upon.
- Over the next 10 years, the two countries have committed to promote cooperation on initiatives aimed at giving an impetus to nuclear safety and security, research and development in nuclear science and technology under various schools of GCNEP.
- They will also deepen the dialogue on nuclear and other radioactive material security by collaborating on advanced projects in the field (such as future technology), with the goal of sharing the outcomes in the international arena.

6.5.RT-LAMP

- The novel coronavirus, SARS-CoV-2, causes the Coronavirus disease-2019 (COVID-19) and this pandemic. It is highly infective, and everyday thousands of people are newly infected.
- Since there is no vaccine or cure for the novel coronavirus infection till today, there is a strong need for rapid, specific and sensitive SARS-CoV-2 detection technology to control and contain the virus.

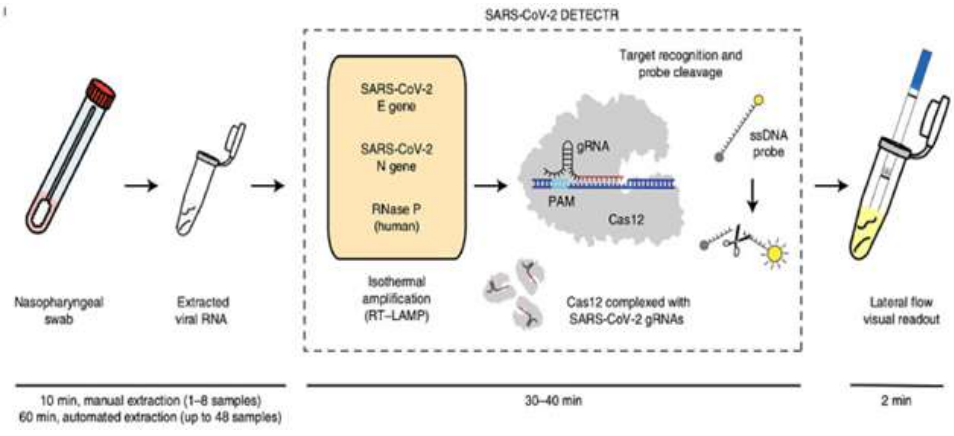
Current method

- The current method for SARS-CoV-2 diagnosis is the real time reverse transcription polymerase chain reaction (RT-PCR) test which detects the presence of viral nucleic acids in nasopharyngeal swab samples.
- But it has certain shortcomings.

- The test requires complex and costly equipment.
- It requires extensive training for potential users.
- As the specificity and sensitivity of the test is about 95%, there is a possibility of false negative results.
- The turnaround time is about 10 hours, so that the result will be available only by the next day.
- In remote places, the turnaround time further increases depending on the distance the samples need to travel.
- In short, the RT-PCR does not have the capacity to keep pace with the increasing demand.
- COVID-19 serology tests are also in use to detect antigens that are associated with the virus infection.
- These tests are easy to use with rapid results, as well as have minimal expenses.
- However, serology immunoassay lacks the necessary accuracy to be a reliable diagnostic test due to its low sensitivity and high false negative/positive rates.

Superior technique

- With the above-mentioned status of COVID-19 detection ambiguity, there is an urgent need for a better technique for COVID-19 testing.
- This superior technique is now in India in the form of RT-LAMP (Reverse Transcriptase loop-mediated isothermal amplification) technology.
- This is a one-step nucleic acid amplification method to multiply specific sequences of RNA of the coronavirus.
- Here, the RNA is first made into cDNA (copy DNA) by the usual reverse transcription.
- Then, the DNA is amplified by the LAMP technique.
- Although the LAMP technique has been used in western countries for the past five years or more, the technique is new to the Indian IVD industry.
- The LAMP technology has many advantages over RT-PCR technology.



- The RT-PCR test needs different temperatures in one cycle.
- The temperature of the solution has to be changed from 92 degrees C to 56 degrees C and again to 72 degrees C every two minutes, and this cycle has to be repeated.
- Thus, the PCR test needs expensive thermal cycler as well as the real time PCR machines.

- On the other hand, the new RT-LAMP technology is done at 65 degrees C, where the DNA amplification is done at a constant temperature (isothermal), so that expensive thermal cycler is not required.
- Moreover, the quantity of DNA amplified in the LAMP technology is hundred thousand times more than that is taking place in PCR.
- Therefore the final assay is possible with a simple colour reaction, removing the need for very costly real time PCR machines.
- An equally important advantage of the LAMP technology is that the assay is so fast that results can be obtained within 30 minutes and positive samples are amplified as early as 10 minutes.
- This may be compared with the PCR technique which needs 8–10 hours for completion.
- This means that COVID-19 testing centres can report with accuracy in substantially lower turnover time.
- Yet another advantage of LAMP is that the reagents are to be stored at 4 degree C (ordinary fridge), whereas the PCR-based reagents are to be stored and transported at –20 degrees C, which needs deep freezers that escalate the cost.
- The LAMP technology does not need laborious preparation as in the case of RT-PCR. LAMP is cost effective and does not need complex expensive equipment.
- Assays can be performed with minimum skill and minimum infrastructure.

Recently validated

- The LAMP technology has been recently validated by the Indian Council of Medical Research with sensitivity 98.7% and specificity 100%.
- Thus the LAMP technology is superior to the PCR technology–based COVID-19 kits where specificity is around 95% only.

6.6.JPC proposes to expand ambit of personal data protection Bill

- Context: The final version of India's Personal Data Protection (PDP) Bill may cover the entire ambit of data protection and not merely securing personal data, with a joint parliament committee (JPC) significantly expanding the scope of the crucial legislation.
- Panel members want the Bill to focus more on the digitization and localization of data, with personal data as one part of the Bill
- "The Personal Data Protection Bill is likely to undergo a complete transformation as the intent of the Bill is likely to get changed.
- The ambit of the Bill needs to be expanded and it cannot be just about personal data. JPC members are unanimous that the PDP Bill should be about data and protection of data
- The final Bill may also cover non-personal data, with sub-heads about sensitive data and critical data.
- JPC is unanimous in its decision that purpose of the Bill should be redefined and more clearly defined. Some members feel the earlier the Bill was a little vague and needed improvement. Now the focus is on data, not just personal but also non-personal, sensitive and critical data as well.

- The biggest concern before the committee now is localization of data, because some of the representatives of companies and organizations that have been invited before the JPC have informed the parliamentary panel that most of the social media platforms store data beyond the boundaries of India.
- So, in case of any investigations, it will be difficult to retrieve the data for investigation purposes.
- The Bill, introduced in the Lok Sabha last December, seeks to protect the privacy of individuals relating to their personal data.
- It calls for setting up a Data Protection Authority of India and aims at creating a framework for organizational and technical measures for processing data.

6.7.Brain Fingerprinting

- Context: a team of CBI officers probing the alleged rape and murder of a 19-year-old Dalit girl in Hathras, Uttar Pradesh, arrived at the Gandhinagar-based Forensic Science Laboratory (FSL) with the four accused. A brain electrical oscillation signature profiling (BEOSP) test will be conducted on all four.

So what exactly is the BEOSP test?

- Brain Electrical Oscillation Signature Profiling (BEOSP) also known as brain fingerprinting is a neuropsychological method of interrogation in which the accused's participation in the crime is investigated by studying their brain's response.
- The BEOSP test is carried out via a process known as electroencephalogram, conducted to study the electrical behaviour of the human brain.
- Under this test, the consent of the accused is first taken and they are then made to wear caps with dozens of electrodes attached to them.
- The accused are then shown visuals or played audio clips related to the crime to check if there is any triggering of neurons in their brains which then generate brainwaves.
- The test results are then studied to determine the participation of the accused in a crime.
- To be fair to the accused, probes on the basis of their alibis are prepared and then present two hypotheses in front of them to invoke their brain's reaction.
- The tests are based on the phenomenon of 'knowledge' and 'experience'.
- A person's brain might have knowledge of the crime committed and the alibi they have come up with. But it is the 'experience' of having participated in the crime that determines their guilt.

What differentiates a BEOSP test from a polygraph or a lie detector?

- The BEOSP procedure does not involve a question answer session with the accused and is rather a neuro psychological study of their brain.
- In a polygraph test, the accused person's physiological indicators are taken into account which includes blood pressure, pulse rate, respiration and skin conductivity.
- However experts say that while a person might be able to control their pulse rate and BP even in times of distress, a BEOSP test offers a much more credible result.

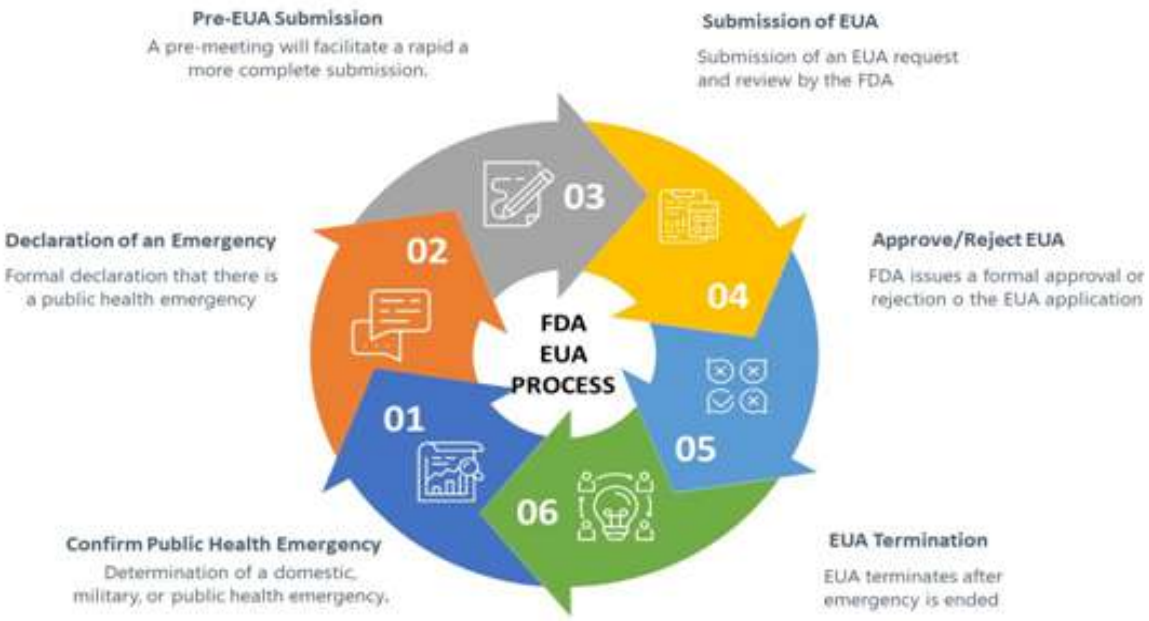
Why were the accused brought to Gandhinagar FSL?

- Founded in 1974, the Gujarat state FSL in Gandhinagar is India's premier laboratory for forensic sciences and technical investigation.
- The FSL offers varied services including suspect detection system, computer forensics, narco analysis as well as an accredited 'cow meat' testing mobile laboratory.
- As per a report by the National Crime Records Bureau (NCRB), Gujarat FSL accounted for the highest number of fingerprints traced in 2019 with as many as 69,636 cases.
- The FSL has a record of 21 lakh persons' fingerprints in its database.
- In January this year, Union Home Minister flagged off the VISWAS (Video Integration and State Wide Advanced Security) project under which more than 7000 CCTV cameras installed in 33 districts of Gujarat is manned in a pyramid structure by a centralized control and command centre in Gandhinagar which in turn is entrusted to send any live feed related to crime investigation to cyber crime lab of FSL.

6.8.Emergency use authorization

- Context:
  - ✓ US drugmaker Moderna was applying for emergency use authorisation for its Covid-19 vaccine.
  - ✓ A few days earlier, Pfizer applied for emergency use authorisation for the vaccine it has developed in collaboration with BioNTech.
  - ✓ In India, Serum Institute of India, which is trialing a version of the AstraZeneca-Oxford vaccine, has said it expects to seek emergency use authorisation within the next two weeks.

What is emergency use authorisation (EUA)?



- Vaccines and medicines, and even diagnostic tests and medical devices, require the approval of a regulatory authority before they can be administered.
- In India, the regulatory authority is the Central Drugs Standard Control Organisation (CDSCO).

- For vaccines and medicines, approval is granted after an assessment of their safety and effectiveness, based on data from trials.
- The approval from the regulator is required at every stage of these trials.
- This is a long process, designed to ensure that a medicine or vaccine is absolutely safe and effective.
- The fastest approval for any vaccine until now — the mumps vaccine in the 1960s — took about four-and-a-half years after it was developed.
- In emergency situations, like the current one, regulatory authorities around the world have developed mechanisms to grant interim approvals if there is sufficient evidence to suggest a medical product is safe and effective.
- Final approval is granted only after completion of the trials and analysis of full data; until then, Emergency Use Authorisation (EUA) allows the medicine or the vaccine to be used on the public.

When can EUA be granted?

- In the US, the Food and Drug Administration (FDA) grants an EUA only after it has been determined that the "known and potential benefits outweigh the known and potential risks of the vaccine" (or medicine).
- This means that an EUA application can be considered only after sufficient efficacy data from phase 3 trials had been generated.
- An EUA cannot be granted solely on the basis of data from phase 1 or phase 2 trials, although these too need to show the product is safe.
- For Covid vaccines, the FDA has specified that it would consider an application for EUA only if phase 3 data showed it was at least 50% effective in preventing the disease.

What is the process of getting an emergency use authorisation in India?

- Experts and activists say India's drug regulations do not have provisions for an EUA, and the process for receiving one is not clearly defined or consistent.
- Despite this, CDSCO has been granting emergency or restricted emergency approvals to Covid-19 drugs during this pandemic — for Remdesivir and Favipiravir in June, and Itolizumab in July.
- Some of the drugs that have received restricted emergency approvals in India, like Itolizumab, were not subsequently included in the country's Covid-19 Clinical Management Guidelines.

How often has EUA been granted?

- EUA is a relatively recent phenomenon.
- FDA granted its first EUA for the civilian population in 2009 for the use of Tamiflu drug for infants and young children for the treatment of H1N1 infection.
- Since then, EUAs have been granted for several medicines, diagnostics, and equipment like ventilators or even PPEs, but never for a vaccine.
- An EUA can be granted only in a declared public health emergency; previous EUAs came during the spread of the Ebola virus, Zika virus and MERS coronavirus.

- Remdesivir or faviparir, which received EUA for treatment of Covid-19, including in India, are existing drugs approved for other ailments.
- They could not be administered to Covid-19 patients without extensive trials, but because they showed promise in limited testing, in specified conditions, they were therefore "repurposed" for Covid-19 patients through EUAs.

Is there a risk in using a product that has only been granted an EUA?

- According to the US FDA, the public has to be informed that a product has only been granted an EUA and not full approval.
- In the case of a Covid-19 vaccine, for example, people have to be informed about the known and potential benefits and risks, and the "extent to which such benefits or risks are unknown", and that they have a right to refuse the vaccine
- There has been an ongoing debate over whether people have the option of refusing to take the vaccine.
- Incidentally, no country has made vaccination compulsory for its people.
- Initially, all vaccines are likely to be deployed on emergency use authorisations only.
- Final approval from respective authorities may take several months, or years.

6.9.Rocket Booster from 1966 Become a Near-earth Object

- Context: NASA has confirmed that the Near-Earth Object called 2020 SO is the rocket booster that helped lift the space agency's Surveyor spacecraft toward the Moon in 1966.
- Scientists concluded that the object is in fact the rocket booster, after more than 170 measurements of the object's position were analysed over the course of three months by observatories across the world.

So what was Surveyor-2?

- The Surveyor-2 spacecraft was supposed to make a soft landing on the Moon's surface in September 1966, during which time one of the three thrusters failed to ignite as a result of which the spacecraft started spinning and crashed on the surface.
- The aim of the mission was to reconnoiter the lunar surface ahead of the Apollo missions that led to the first lunar landing in 1969.
- While the spacecraft crashed into the Moon's surface, the rocket booster disappeared into an unknown orbit around the Sun.

How was the object determined to be the rocket booster?

- Astronomers track asteroids using telescope to determine if there are potentially hazardous asteroids that pose a threat to the planet.
- Therefore, it is also important for them to be able to distinguish between natural and artificial objects that orbit around the Sun.
- The rocket booster has come "somewhat close" to the Earth in the past few decades.

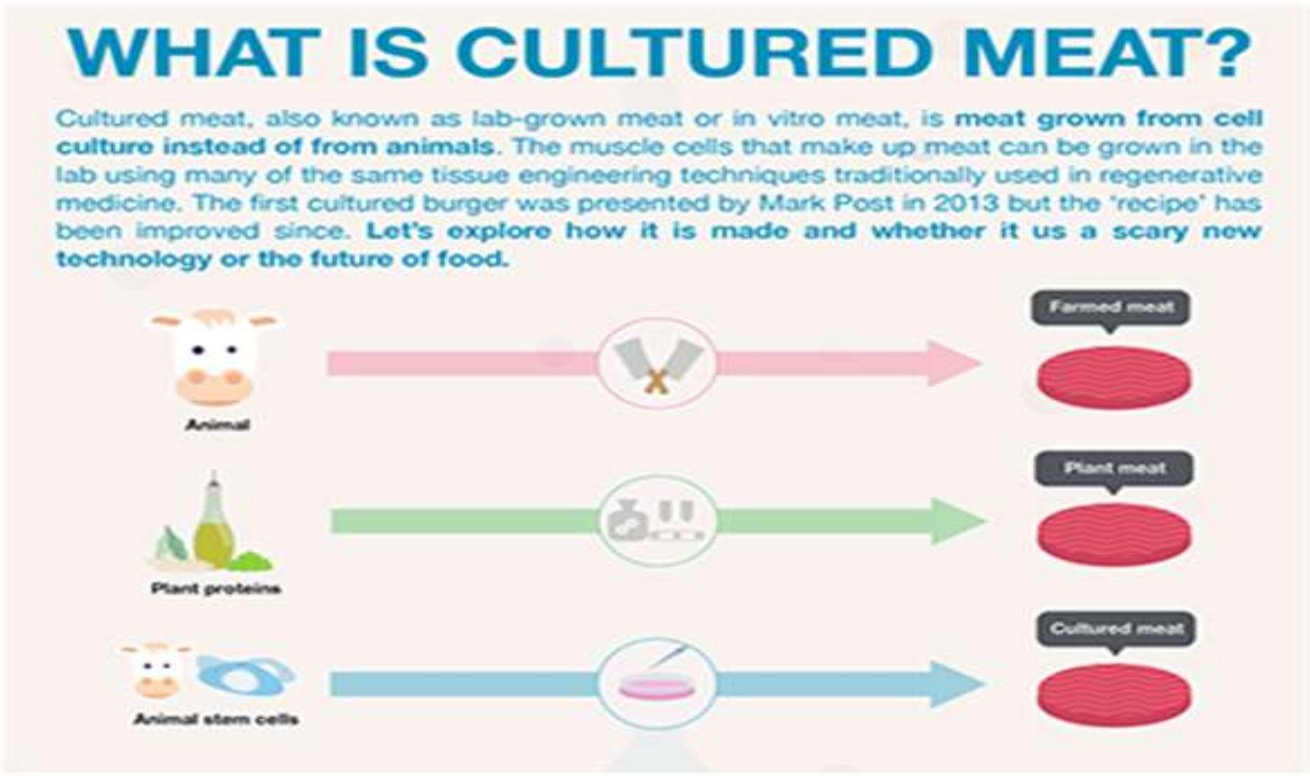
- One approach to the Earth in late 1966 was so close that the object was thought to have originated from Earth.
- In September, the NASA-funded Pan-STARRS1 telescope detected an unknown object which followed a curved path in the sky, indicating its proximity to the Earth.
- Initially, the object was thought to be an asteroid orbiting the Earth and was hence given a name by the Minor Planet Center.
- Following this, scientists from the Center for Near-Earth Object Studies (CNEOS) observed that the orbit was not a normal asteroid's, since asteroid orbits are more tilted and elongated relative to the Earth's.
- But as per NASA, 2020 SO's orbit around the Sun was similar to that of the Earth's, "was at about the same distance, nearly circular, and in orbital plane that almost exactly matched that of our planet- highly unusual for a natural asteroid."
- On November 8, the booster drifted into the Earth's sphere of dominant gravitational force, in a region called the Hill Sphere.
- 2020 SO will remain in this region for over four months before it takes on a new orbit around the Sun in March 2021.
- It made its closest approach to the Earth on December 1 allowing scientists to study its composition and know for sure that the object was in fact the rocket booster.
- Astronomers will now continue to study it until it is gone.

6.10.China's Quantum Computer

- Context: Chinese scientists claim to have built a quantum computer which is 100trillion times faster than the world's most advanced supercomputer - Japan's Fugaku.
- The prototype is able to perform a calculation which would take a traditional computer billions of years to figure out.
- The breakthrough means the country has achieved quantum supremacy, a significant milestone as China and the US compete to lead in quantum computing technology.
- It comes as late last year tech giant Google claimed to have demonstrated superiority over conventional machines.
- Quantum computing is a fledgling technology which uses the weird world of quantum physics to achieve vastly speed-up information processing.
- Normal, 'classical' computers store data as so-called 'bits' that can either be a '0' or a '1'.
- Quantum bits — qubits — instead can be both at once.
- This allows groups of qubits in a quantum computer to store more data using less energy than a classical computer could using the same number of bits.
- The researchers have built a quantum computer prototype that is able to detect up to 76 photons through Gaussian boson sampling, a standard simulation algorithm
- Six years in the making and $1billion: Japan's Fugaku 'world's fastest' supercomputer

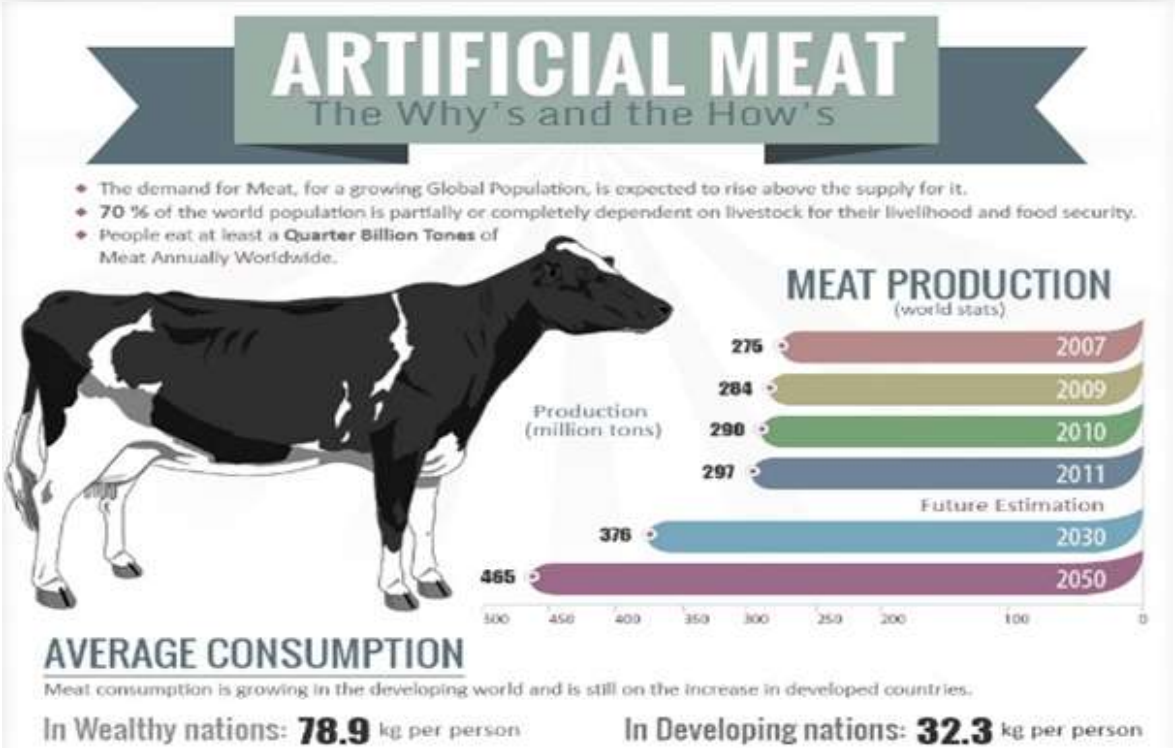
- In June 2020, Japan took the lead in the supercomputer race, with a machine which is 2.8 times faster than the previous title holder.
- The Fugaku supercomputer was developed by research institute RIKEN and Fuijitsi Ltd and the processor technology comes from UK-based ARM.
- The previous top-ranked system as of November 2019 was at Oak Ridge National Laboratory in the United States with chips designed by IBM.
- As well as helping simulate nuclear blasts and model climate systems, the Fugaku machine has been working on the fight against COVID-19.
- Such devices may one day revolutionise tasks that would take normal computers years, such as seeking new drugs and optimising city and transportation planning.
- A supercomputer can deliver large numbers of computing cycles per second.
- A quantum computer aims to utilise new quantum algorithms to accelerate digital computation.
- In 2019, Google claimed it had developed a processor - named Sycamore - that performs in three minutes and 20 seconds work that would take classical computers 10,000 years.
- In a bid to win the tech race, China is building a new National Laboratory for Quantum Information Sciences, costing $10 billion.

6.11.Lab-grown meat



Why is this a big deal?

- In its June 2020 Food Outlook Report, the UN Food and Agriculture Organisation (FAO) stated that world meat output was set to contract row to 333 million tonnes, 1.7% less than in 2019.



- The disruption has been caused mainly by Covid-19, but it has added to already widespread fears about zoonotic diseases, especially African swine fever and highly pathogenic avian influenza.
- This provides an opportunity to the alternative meat industry.

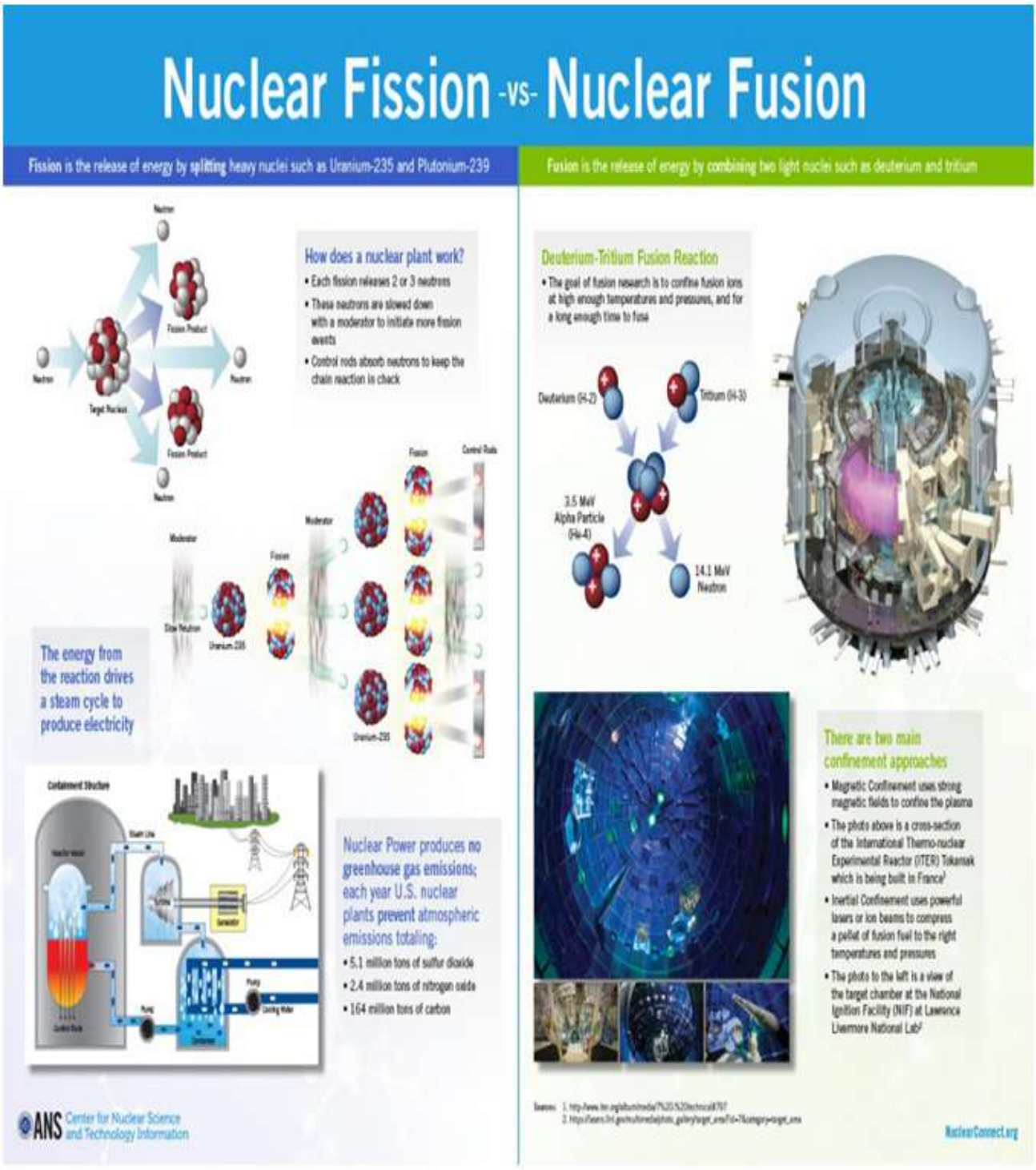
- According to a Nielsen report from May this year, the sale of plant-based meats, which have been available in retail outlets and restaurants since 2018, grew by 264% in the US over a nine-week period that ended May 2.
- The market for alternative proteins was growing even before the pandemic: in a 2019 report, Barclays predicted that alternative meat could capture 10% of the $1.4-trillion global meat market over the next decade.
- This is why the approval by Singapore to cultured chicken is seen as significant.

How is lab-grown or cultured meat different from plant-based meat?

- The latter is made from plant sources such as soy or pea protein, while cultured meat is grown directly from cells in a laboratory.
- Both have the same objective: to offer alternatives to traditional meat products that could feed a lot more people, reduce the threat of zoonotic diseases, and mitigate the environmental impact of meat consumption.
- In terms of cellular structure, cultured or cultivated meat is the same as conventional meat — except that cultured meat does not come directly from animals.
- The report adds that since cultivated meat is created in clean facilities, the risk of contamination by pathogens such as salmonella and E coli, which may be present in traditional slaughterhouses and meat-packing factories, is significantly reduced.
- It does not require antibiotics either, unlike animals raised for meat, thereby reducing the threat posed to public health by growing antibiotic resistance.
- Conventional meat still dominates the market, and industry lobbies have been fighting to hold on to their market, not least by challenging the very idea of alternative meats.

6.12.China's 'artificial sun'

- Context: China successfully powered up its "artificial sun" nuclear fusion reactor for the first time, marking a great advance in the country's nuclear power research capabilities.
- The HL-2M Tokamak reactor is China's largest and most advanced nuclear fusion experimental research device, and scientists hope that the device can potentially unlock a powerful clean energy source.
- It uses a powerful magnetic field to fuse hot plasma and can reach temperatures of over 150 million degrees Celsius, approximately ten times hotter than the core of the sun.
- Located in south-western Sichuan province and completed late last year, the reactor is often called an "artificial sun" on account of the enormous heat and power it produces.
- Chinese scientists have been working on developing smaller versions of the nuclear fusion reactor since 2006.
- They plan to use the device in collaboration with scientists working on the International Thermonuclear Experimental Reactor -- the world's largest nuclear fusion research project based in France, which is expected to be completed in 2025.



- Fusion merges atomic nuclei to create massive amounts of energy -- the opposite of the fission process used in atomic weapons and nuclear power plants, which splits them into fragments.
- Unlike fission, fusion emits no greenhouse gases and carries less risk of accidents or the theft of atomic material.
- But achieving fusion is both extremely difficult and prohibitively expensive, with the total cost of ITER estimated at $22.5 billion.

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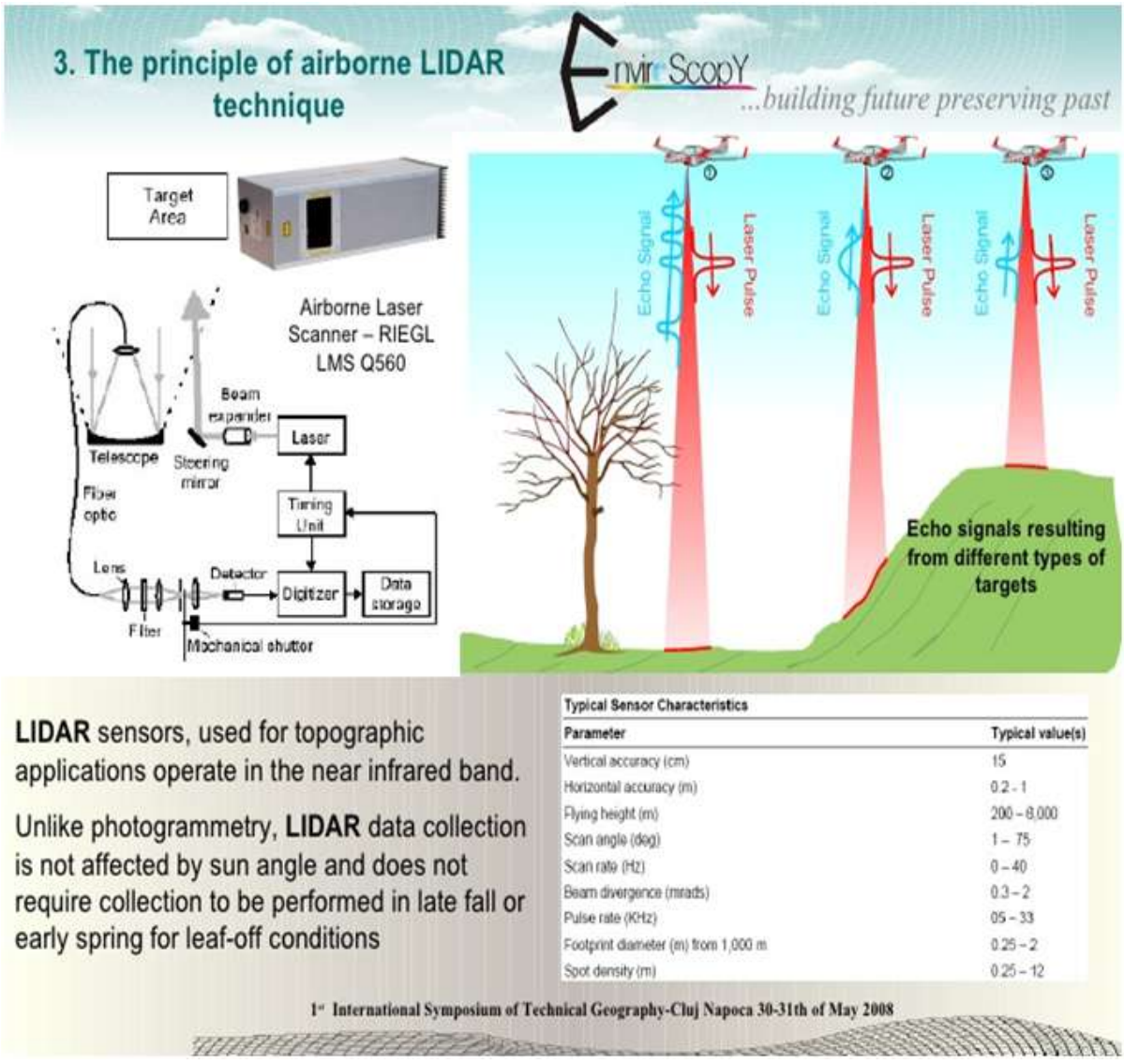
6.13.LiDAR Technique

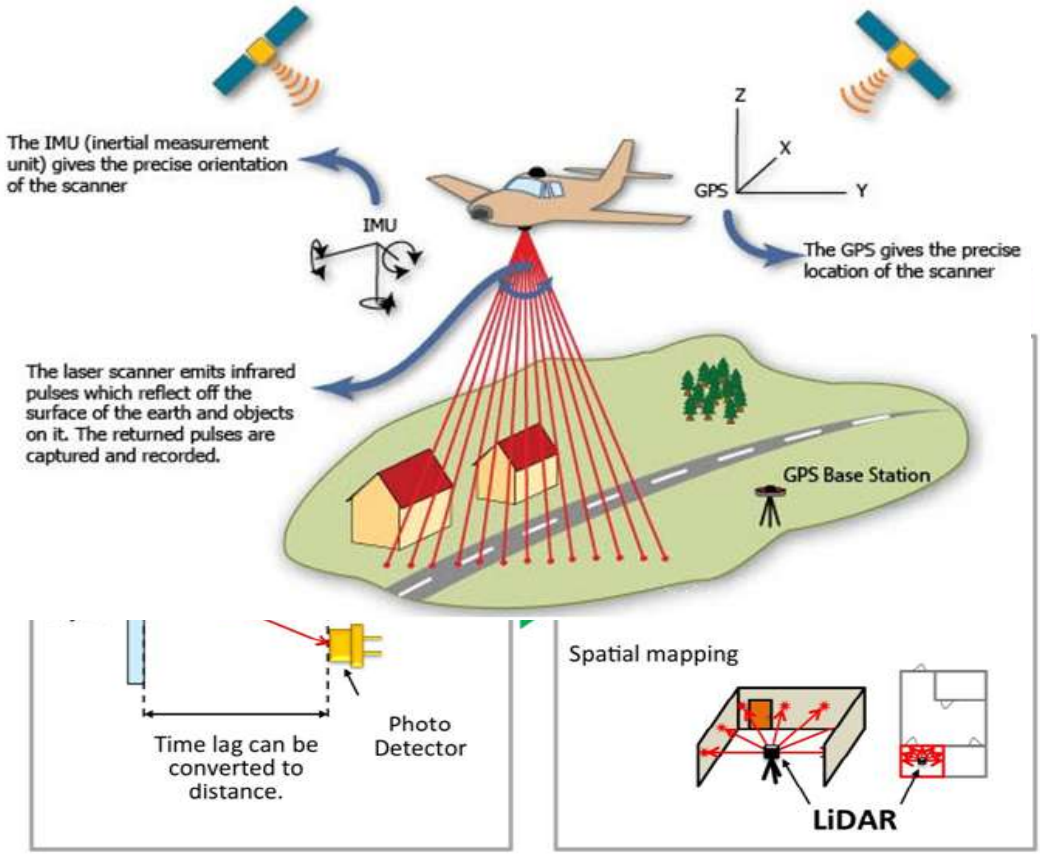
- Delhi-Varanasi bullet train project: NHSRCL to conduct ground survey using LiDAR technique
- Indian Railways has entrusted National High Speed Rail Corporation Limited (NHSRCL) with the work for preparing Detailed Project Report (DPR) for the Delhi-Varanasi High Speed Rail (HSR) corridor.
- This corridor is among the eight high-speed networks that the Railways is planning across the country, one of which -- the Mumbai-Ahmedabad high-speed rail (HSR) -- is under construction.

LiDAR technique

- National High Speed Rail Corporation Limited will be adopting Light Detection and Ranging Survey (LiDAR) technique using Laser enabled equipment mounted on a helicopter for conducting ground survey for the preparation of Detailed Project Report for the proposed Delhi-Varanasi HSR corridor.
- The alignment or ground survey is a critical activity for any linear infrastructure project as the survey provides details of areas around the alignment.



- This technique uses a combination of Laser data, GPS data, flight parameters and actual photographs to give accurate survey data.



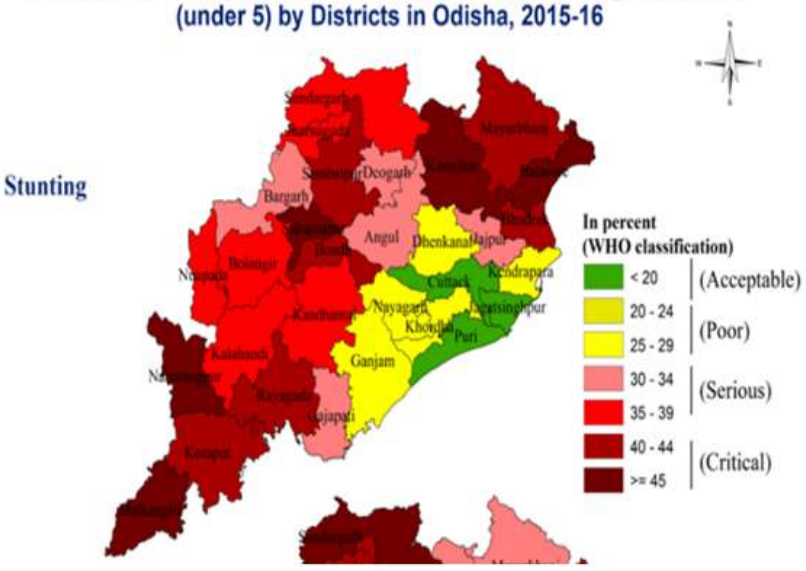
- Based on the findings of the survey, designing of the vertical & horizontal alignment, structures, location of the stations and depots, Land requirement for the corridor, identification of project affected plots/structures, right of way etc are decided.
- The aerial LiDAR survey technique, for the first time for any railway project in India, was adopted for the Mumbai- Ahmedabad High Speed Rail Corridor primarily because of its high accuracy.

6.14.Vitamin C Fortified Rice

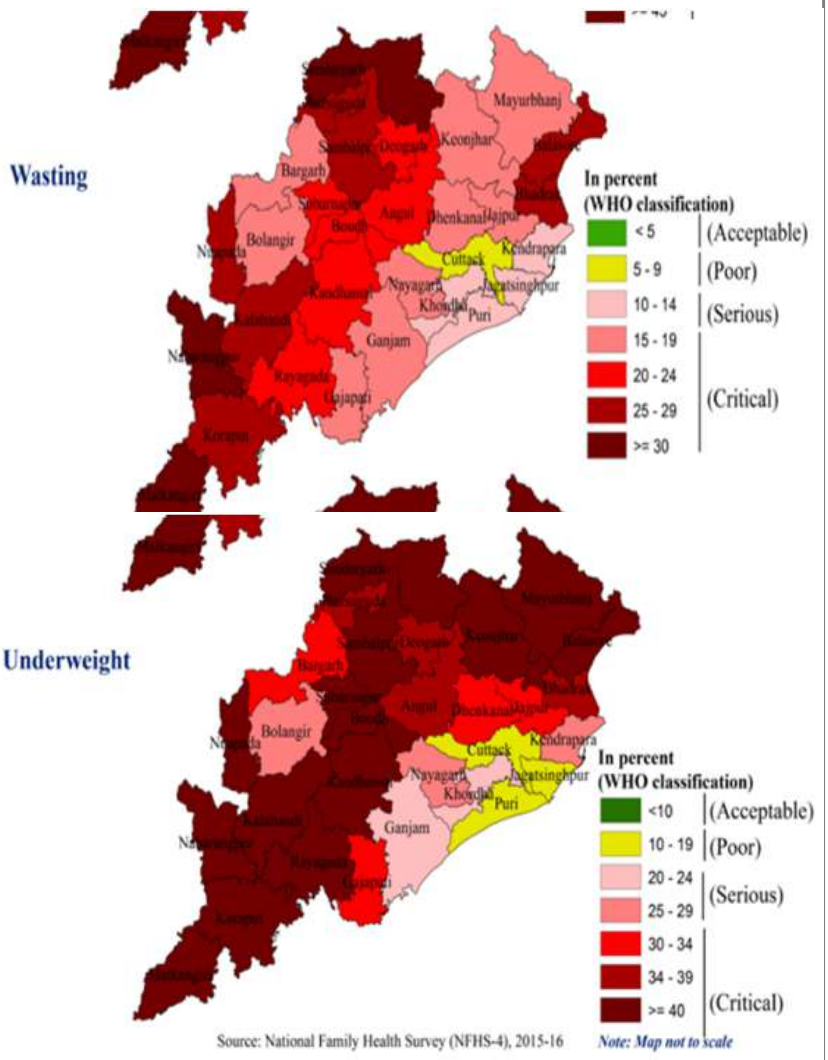
- Context: The Odisha government has decided to distribute vitamin C fortified rice in Malkangiri district to reduce malnutrition and anaemia. Seven out of 10 women in the district are anaemic and every second child is stunted or underweight.
- The state government has signed an agreement with a New Delhi-based company which will fortify rice with vitamin C.
- The state civil supplies department had placed an order for these machines for owners of 23 old and three new rice mills in the district.
- The department will supply paddy to rice millers, who would fortify it with vitamin C, which will then be distributed to consumers through the PDS from February 2021.
- As per the food supplies & consumer welfare department, Odisha, there are 507,025 total beneficiaries under the national food security act, in Malkangiri district.
- All of them would be supplied vit C fortified rice.

- According to the World Health Organization (WHO), food fortification is defined as the practice of deliberately increasing the content of essential micronutrients so as to improve the nutritional quality of the food supply and to provide a public health benefit with minimal risk to health.
- In October 2016, Indian government's Food Safety and Standards Authority Of India (FSSAI) operationalized the Food Safety and Standards (Fortification of Foods) Regulations, 2016 for fortifying staples namely wheat flour and rice (with iron, Vitamin B12 and folic acid), milk and edible oil (with Vitamins A and D) and double fortified salt (with iodine and iron) to reduce the high burden of micronutrient malnutrition in India.
- Several food experts, and activists have strongly opposed the decision.
- They believe this decision will only benefit companies engaged in artificial vitamin-C enrichment
- The rice when cooked, boiled, and drained, will lose more than 75 per cent of the artificially added vitamin C as it is a water-soluble vitamin.
- Anaemia, which results from a lack of red blood cells or dysfunctional red blood cells in the body, leads to reduced oxygen flow to the body's organs.
- Iron supplements can be used for iron deficiency.
- And as per a study, vitamin C also plays an important role in iron metabolism, application for red blood cell formation, and absorption of iron in the body.
- According to the National Family Health Survey (NFHS), 2015-2016, seven in ten women in the age group of 15-49 years in Malkangiri district are anaemic.
- Meanwhile, 47.2 per cent of men in the same age bracket, and 72.2 per cent of children (6-59 months) are anaemic, respectively.

Map 5.1: Percentage of Stunted, Wasted and Underweight Children (under 5) by Districts in Odisha, 2015-16



- As per the same NFHS report, only 16.8 per cent of children (6-23 months) in the district receive an adequate diet. More than 45 per cent of under-five children are stunted (height-for-age), and 51.8 per cent are underweight (weight-for-age).
- Odisha has the third-highest percentage of tribal population in the country (9.5 million), as documented in the Population Census 2011.
- Recently, the state government announced to introduce fish and fish-based products to anganwadi children and pregnant and lactating women in Mayurbhanj, a predominantly tribal district, where 43.5 per cent of children under-5 years are stunted (low height-for-age) and 45.6 per cent of pregnant women are anaemic.
- This move was welcomed by activists and nutritionists.
- However, the initiative of vitamin C fortified rice is facing criticism.



- Experts believe in place of artificially adding vitamin C to rice, the state government should provide natural food sources, such as amla and lemon.
- On World Food Day, the central government announced supplying fortified rice in schools covered under the mid-day meal programme.
- These fortified rice will carry three micronutrients — B12, iron and folic acid.

6.15.Draft guidelines of Technical Specifications of Floating Structures

- Ministry of Ports, Shipping and Waterways has compiled the draft guidelines for technical specifications of floating structures, with a vision to set up and deploy world-class floating infrastructure all along the coastline and issued the same for public consultation.
- Floating structure because of its inherent advantages, is attractive solution and being encouraged by the Ministry of Ports, Shipping and Waterways.

The benefits of floating jetties over the conventional quay and fixed concrete structures are as follows

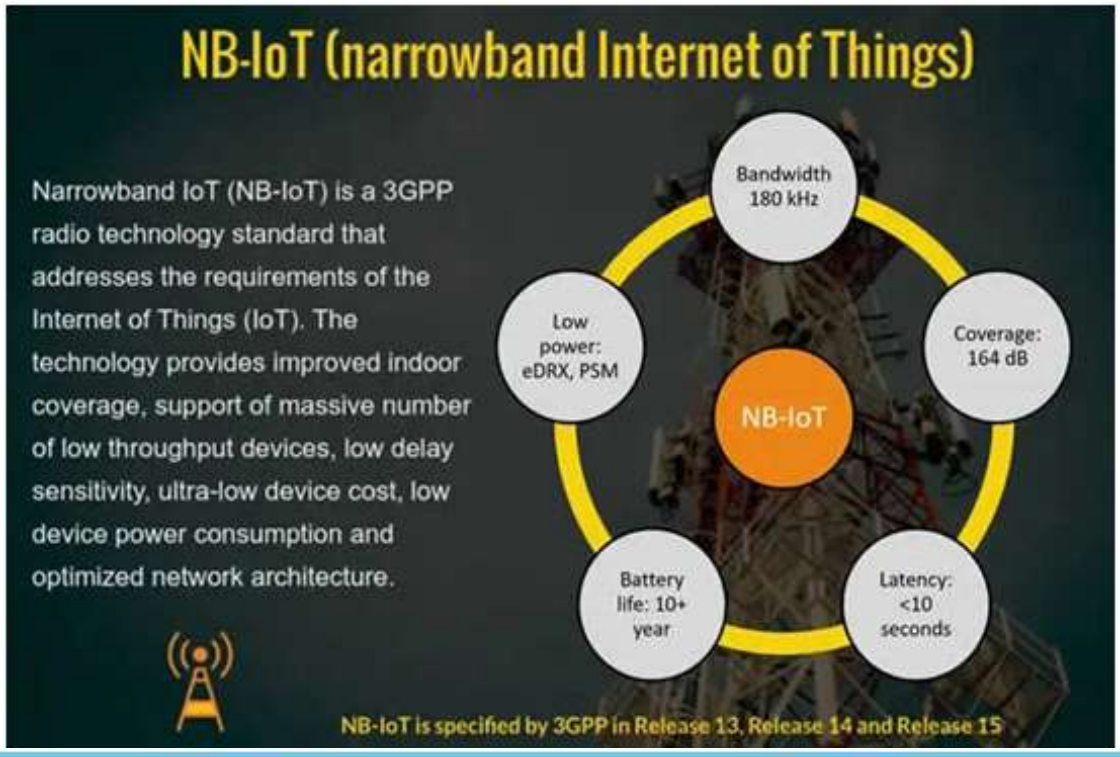
- It is a cost-effective solution and much cheaper than conventional structures price.

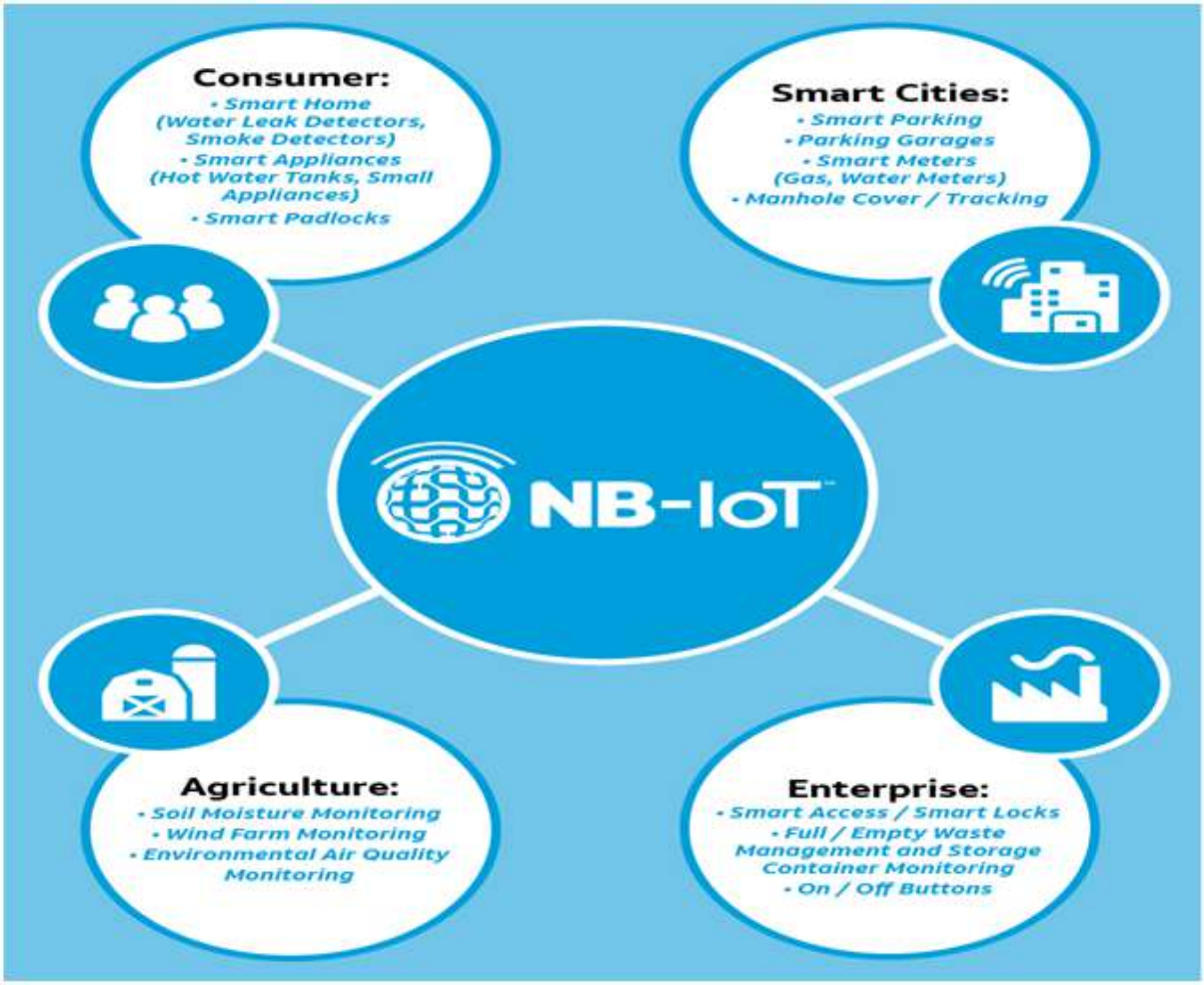
- Setting up of floating structures is much faster as compared to conventional jetties. Usually, floating structures can be built in 6-8 months as compared to 24 months for conventional structures.
- Its environmental impact is minimal.
- Expansions are easily feasible due to modular construction techniques.
- It is easily transportable in case of reconfiguring of the port.
- It provides constant freeboard between jetties and boats.
- Deployment of floating jetties, especially in locations having a large tidal range, where conventional quay poses problems during low tide periods, is very convenient.
- Floating Jetties, at such locations, provide constant freeboard, eases embarkation of ship's stores and straightforward unloading of the fishermen's catch.
    - ✓ It consequently leads to increased productivity as well as safety of the fishermen in the long run.
    - ✓ Ministry of Ports, Shipping and Waterways has successfully implemented a few pilot projects in the recent past by following the international guiding principles.
    - ✓ These include setting up of passenger floating jetties in Goa, water-aerodromes at Sabarmati River & at Sardar Sarovar Dam (for the seaplane services) which are yielding the best results.
    - ✓ More than 80 similar projects of the Ministry are under planning stage all along the coastline for overall development and upliftment of the coastal community.
    - ✓ Ministry has entrusted IIT Chennai to work out the technical specifications of sustainable floating structures like floating jetties, water-aerodromes, floating marinas, fish landing facilities etc. so that precise and stringent technical specifications are established.

6.16.BSNL launches 'world's first' satellite-based narrowband-IoT network4

- Context: BSNL, in partnership with Skylotech India, announced a breakthrough in satellite-based NB-IoT (Narrow Band-Internet of Things), in pursuance vision of a truly Digital India starting with fishermen, farmers, construction, mining and logistics enterprises.
    - ✓ With this solution, India will now have access to a connectivity for millions of yet unconnected machines, sensors and industrial IoT devices.
    - ✓ This new 'Made in India' Solution, which is indigenously developed by Skylo, will connect with BSNLs satellite- ground infrastructure and provide PAN-India coverage, including Indian seas.
    - ✓ The coverage will be so vast that it will not leave any dark patch within the boundary of India, from Kashmir & Ladakh to Kanyakumari, and from Gujarat to the North East, including the Indian seas.
- The solution is in line with BSNLs vision to leverage technology to provide affordable and innovative telecom services and products across customers segments
- Skylo would also help provide critical data for the logistics sector to enable effective distribution of COVID-19vaccine in 2021 and will be a big contributor in service to the nation.

- This breakthrough announcement is very timely because it comes during the ongoing Indian Mobile Congress 2020.
- This new technology supports the Department of Telecom and NITI Aayogs plan of bringing indigenous IoT connectivity to India's core sectors.

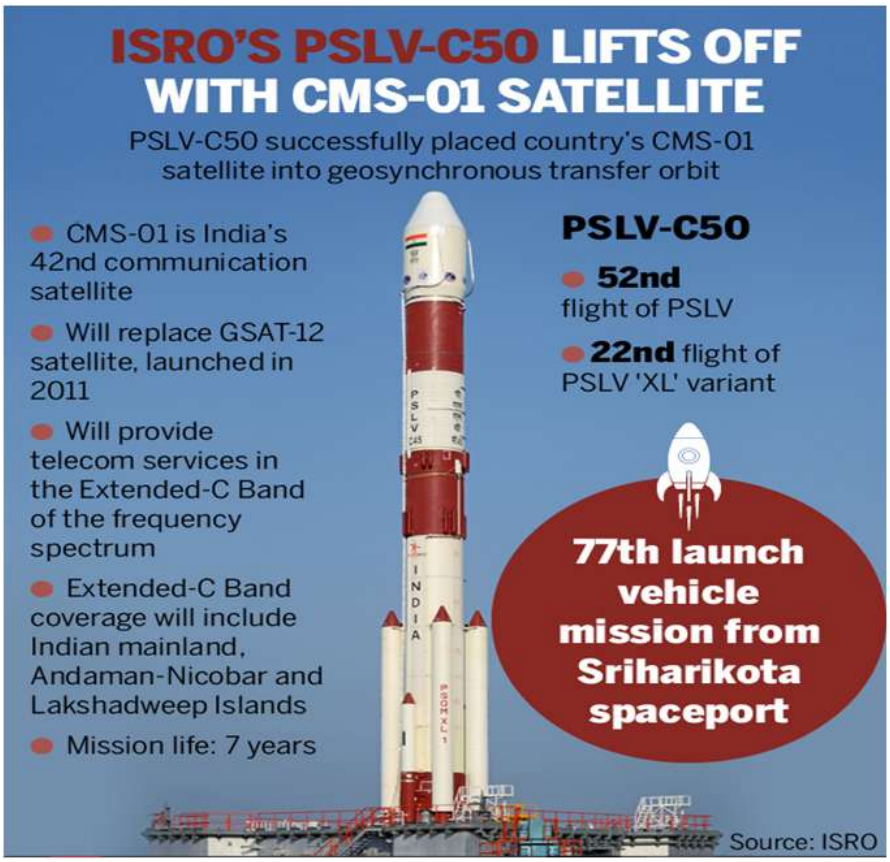




- Examples of where this technology has already been tested successfully include, Indian Railways, fishing vessels, and enabling connected vehicles across India.
- A small, smart, incredibly rugged box, the Skylo 'User Terminal' interfaces with sensors and transmits data to the Skylo Network and into people's hands.
- The accompanying Data Platform provides an immersive, visual, experience for industry-specific applications on mobile or desktop.
- It gives users the ability to take immediate and appropriate action, no matter where they are.
- This new digital machine connectivity layer will serve as a complement to smartphone-centric mobile & Wi-Fi networks, and covers India's full geography to bring online new applications for the first time.
- The device developed by Skylo will be provided only through the state-run firm at a price of around Rs 10,000 a unit.

6.17.CMS-01 Satellite

- The Indian Space Research Organisation (ISRO) successfully launched its 42nd communication satellite CMS-01.
- It lifted from the Second Launch Pad (SLP) of Satish Dhawan Space Centre at Sriharikota.
- Initially scheduled to launch on 8 December and again to 14 December, it was pushed back due to bad weather and the possibility of hurricanes.
- The CMS-01 satellite will be the first in a new series of communication satellites that India will be launching after the GSAT and INSAT series.
- Earlier ISRO had launched the PSLV C49 that had delivered 10 satellites.
- This included EOS-01 which is an earth observation satellite that will provide agriculture, forestry and disaster management support.
- CMS-01 is the 42nd communication satellite from India and weighs around 1,410 kgs.
- It will be replacing the ageing GSAT-12 satellite that was launched 15 July 2011 and was supposed to serve for seven years.



- However, it ended up serving a mission life of nine years.

- The CMS-01 will provide telecom services in the Extended-C Band of the frequency spectrum.
- The Extended-C Band coverage will include Indian mainland, Andaman-Nicobar and Lakshadweep Islands.
- Twenty minutes into the flight, it will be set in the Geostationary Orbit (GEO) at 83° inclination.
- The expected mission life of this spacecraft is supposed to be seven years or more.
- PSLV-C50 rocket launch will be followed by the launch of the new Small Satellite Launch Vehicle (SSLV) carrying the Earth Observation Satellite (EOS-02) and the Geosynchronous Satellite Launch Vehicle-F10 (GSLV) carrying the EOS-3.
- The other Indian satellites that are ready for launch are GISAT and Microsat-2A.

The PSLV-C50 rocket

- The Polar Satellite Launch Vehicle (PSLV) is ISRO's workhorse rocket.
- This will be the 22nd flight of the PSLV rocket in the 'XL' configuration, and the 52nd PSLV flight.
- ISRO added that this will be the 77th launch vehicle mission from SDSC, SHAR.
- The PSLV is 44-metre-high and has four stages with six strap-on booster motors on to the first stage that gives it's a higher thrust during the initial flight moments.
- ISRO has developed and used different PSLV variants, including ones with either two or four strap-on motors, or the Core Alone variant without any strap-on motors.
- As the PSLV is not a reusable rocket, the first stage won't be reclaimed and it will crash into the Indian Ocean.

6.18.Recognition Scheme for Hygiene Rating Audit Agencies

- The Quality Council of India (QCI) has come out with a scheme for approval of hygiene rating audit agencies
- The aim is to help consumers take informed decisions regarding food outlets where they prefer to eat by encouraging businesses to improve hygiene and safety standards.
- The recognised agency will verify compliance with food hygiene and safety procedures laid down by the Food Safety and Standards Authority of India (FSSAI).
- The food establishments are rated based on hygiene and safety conditions observed at the time of audit.
- It said the rating will be in the form of smileys (1 up to 5) and the certificate should be displayed prominently in the consumer facing area.
- Hygiene rating and its recognition scheme will help in improving confidence of Indian consumers and food service operators in basic hygiene and quality of food.

Quality Council of India

- The Quality Council of India (QCI) set up in 1997 is an autonomous body attached to the Department of Industrial Policy & Promotion, Ministry of Commerce and Industry.

- The Chairman of QCI is appointed by the Prime Minister on recommendation of the industry to the government.
- Its mandate is to establish and operate the National Accreditation Structure (NAS) for conformity assessment bodies and providing accreditation in the field of health, education and quality promotion.
- National Accreditation Board for Certification Bodies (NABCB) and National Accreditation Board for Testing and Calibration Laboratories (NABL) are the two accreditation boards of the QCI.
- These two bodies work closely to support the Government and regulators to ensure that the data provided by accredited conformity assessment bodies is robust, reliable, and trustworthy in terms of decision making, compliance testing and standards setting.
- Indian industry is represented in QCI by three premier industry associations namely ASSOCHAM; CII; and FICCI.

6.19.Genetically modified pigs

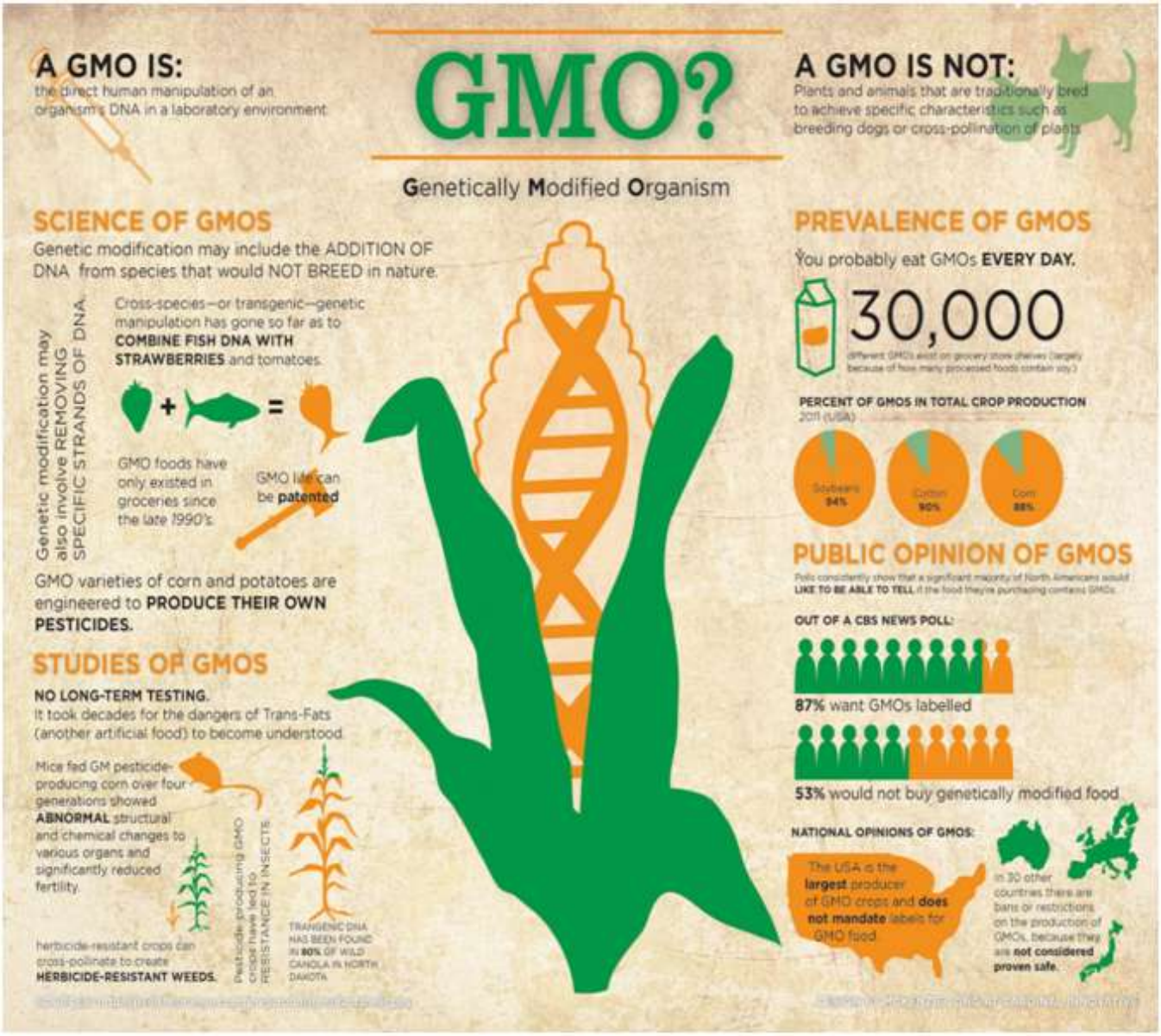
- Context: The US Food and Drug Administration (FDA) approved a first-of-its-kind Intentional Genomic Alteration (IGA) in a line of domestic pigs referred to as GalSafe pigs.
- These pigs may be used for food and human therapeutics.
- This will be the first time that the regulator has approved an animal biotechnology product for both food and biomedical purposes.

What is Intentional Genomic Alteration?

- Intentional genomic alteration in animals means making specific changes to the genome of the organism using modern molecular technologies that are popularly referred to as “genome editing” or “genetic engineering”.
- Such changes in the DNA sequence of an animal may be carried out for research purposes, to produce healthier meat for human consumption and to study disease resistance in animals among other reasons.
- One example is of using IGAs to make an animal more susceptible to certain diseases such as cancer, which helps researchers get a better understanding of the disease and develop new therapies to treat it.
- The FDA maintains that the only difference between an animal with an IGA and one that does not have an IGA is that the IGA gives them a new trait or characteristic, such as faster growth or resistance to certain diseases.
- Essentially, an IGA is inserted into an animal to change or alter its structure and function and the FDA makes sure that the IGA contained in the animal is safe for the animal and safe for anyone who consumes a product or food derived from the animal.

What does FDA’s recent approval mean?

- The FDA made the announcement this week and allowed IGA in GalSafe pigs to eliminate a type of sugar found in mammals called alpha-gal.

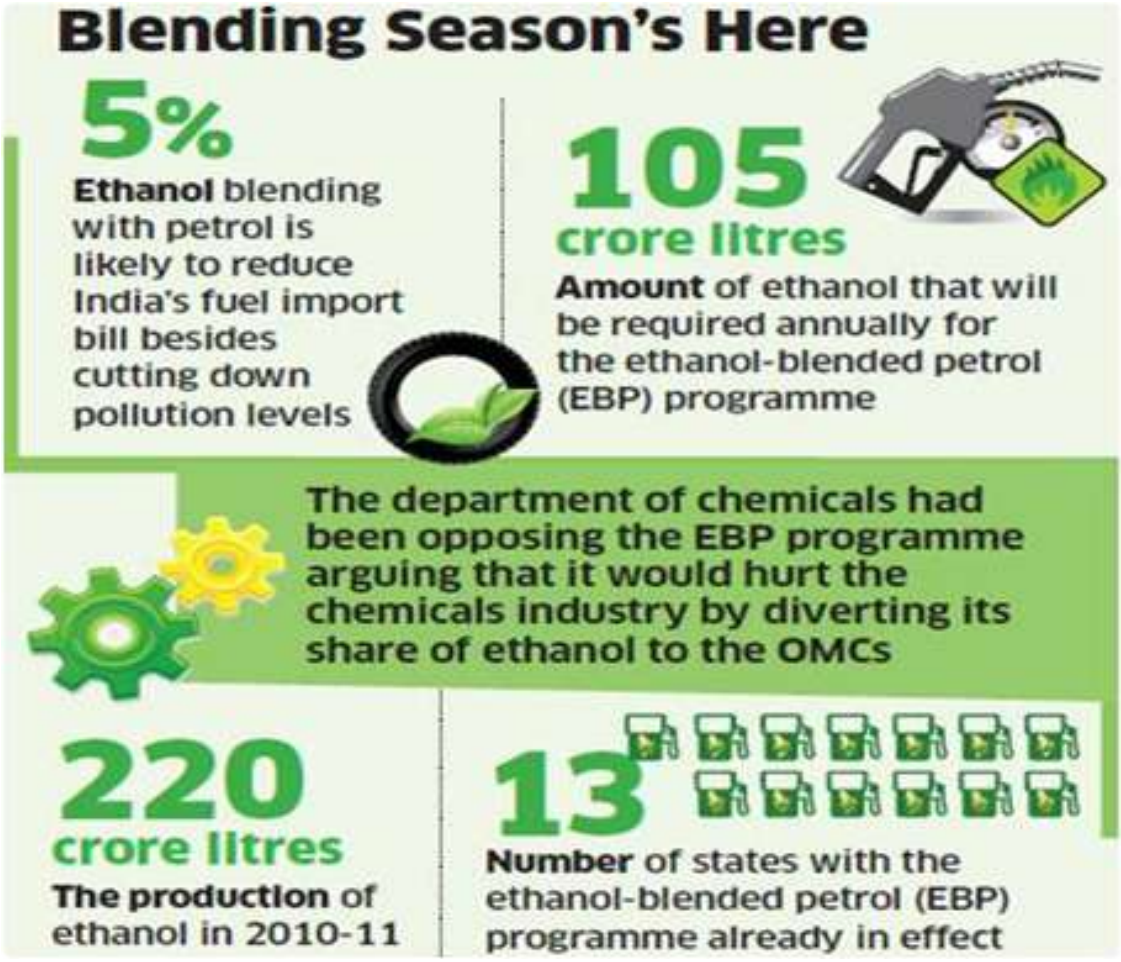


- This sugar is present on the surface of these pigs' cells and when they are used for products such as medicines or food (the sugar is found in red meats such as beef, pork and lamb), the sugar makes some people with Alpha-gal Syndrome (AGS) more susceptible to developing mild to severe allergic reactions.
- Since GalSafe pigs may potentially be used to produce human medical products, IGA will help eventually free these products from detectable alpha-gal sugar, thereby protecting their human consumers from potential allergies.
- According to the FDA, GalSafe pigs may be used to make the blood-thinning drug heparin.

6.20.E20 Ethanol Mixed Petrol

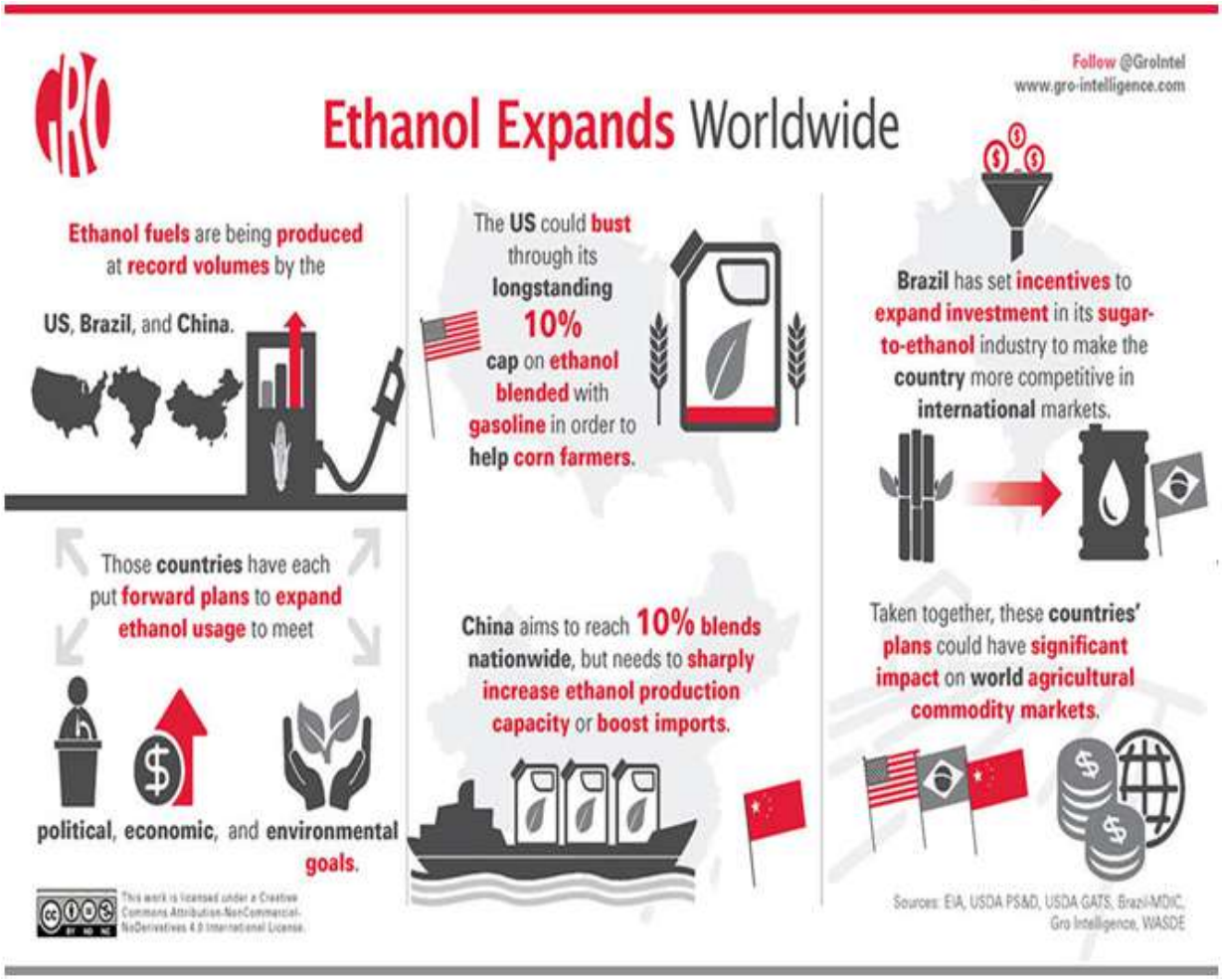
- The government has proposed the adoption of E20 fuel for vehicular use.
- E20 is a blend of 20% ethanol with gasoline (petrol) and can be used as an alternative to the fuels currently available.
- The Ministry of Road Transport and Highways has published a draft notification as it opens up to comments from the public for the adoption of E20 fuel.

- The government is looking at the adoption of mass emission standards for this fuel for transport application.
- Additionally, it also wishes to facilitate the development of E20 compliant vehicles.
- The government believes that the E20 blend will not only curb vehicle emissions but help reduce the country's oil import bill.



Ethanol – Pros and Cons

- Ethanol is a common by-product that comes from agricultural feedstock like corn, hemp, potato, etc.
- It can be used as a bio-fuel in Flexi-fuel vehicles.
- Ethanol is greener than gasoline because the corn and crop plantations absorb carbon dioxide from the atmosphere as they grow.
- While the fuel still releases CO2 when you burn it, the net increase is comparatively lower.
- However, ethanol is less efficient as a fuel.
- It has a lower energy content than energy-rich gasoline and diesel.
- The fuel delivers less power when burned, which in return results in more fuel consumption and lower mileage.
- Additionally, blends over E15 (15% ethanol) is highly corrosive for older vehicles as the alcohol can break down old rubber seals and can damage engines.



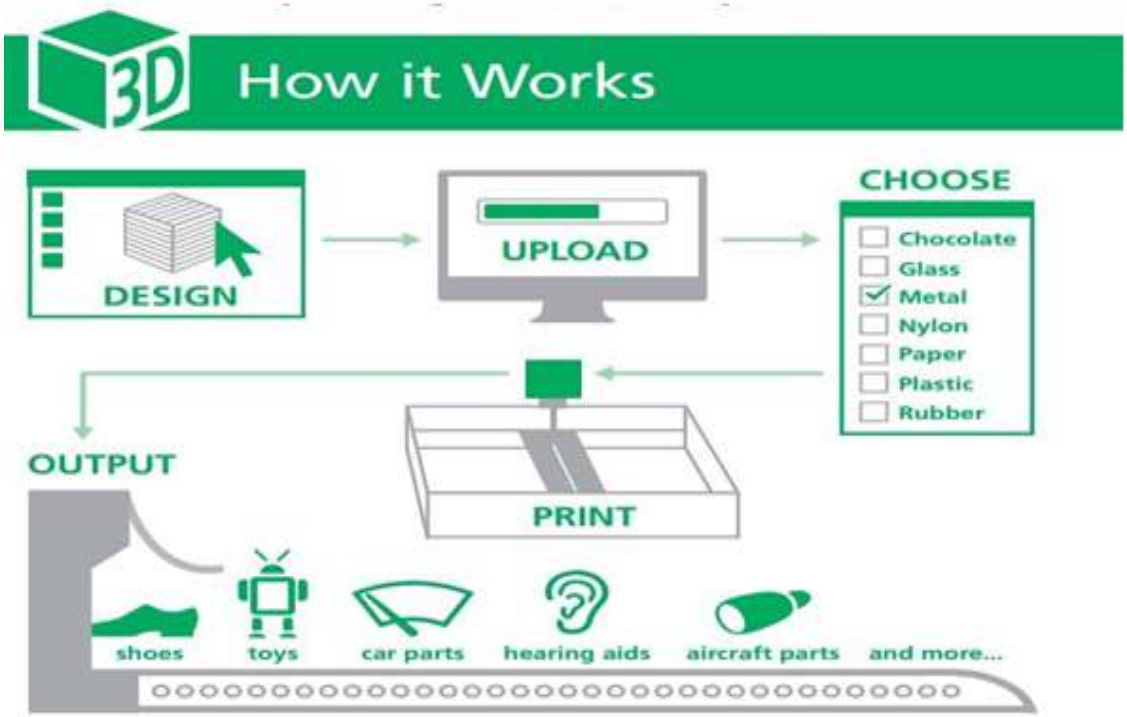
Use of Ethanol in vehicles in India

- Currently, only 10% of ethanol blend is permissible in India.
- However, in 2019, it only reached 5.6%.
- [E20] will help in reducing emissions of carbon dioxide, hydrocarbons, etc.
- It will also help reduce the oil import bill, thereby saving foreign exchange and boosting energy security.
- The ministry said the vehicle manufacturer would define the percentage of ethanol in the blend for its vehicles.
- The same would be displayed on the vehicle through a clearly visible sticker.

6.21.3D Printing Policy

- Context: Ministry of Electronics and Information Technology (MeitY) will soon come up with a policy aimed at promoting 3D printing on an industrial scale to help domestic companies
- It will help them to overcome technical and economic barriers so that they can build supportive and ancillary facilities for world leaders in the technology, such as the US and China.
- The policy will help develop a "conducive ecosystem for design, development and deployment" of 3D printing and additive manufacturing.

- 3D printing is a viable industry; it is mostly in the shape of additive manufacturing, wherein companies make specific products for projects where there are very specific demands such as lightweight equipment, etc
- The global market for additive manufacturing is expected to reach $ 34.8 billion by 2024, which is growing at a compound annual growth rate of 23.2 per cent, according to the IT Ministry's estimates.
- 3D printing or additive manufacturing uses computer-aided designing to make prototypes or working models of objects by laying down successive layers of materials such as plastic, resin, thermoplastic, metal, fiber or ceramic.
- With the help of software, the model to be printed is first developed by the computer, which then gives instructions to the 3D printer.
- There is not only the manufacturing aspect of it, but also design and software.
- The policy will aim to cover both sides.
- The Central Government will also look to encourage market leaders to establish global bases for 3D manufacturing in India, while also discouraging imports of printed material for domestic requirements.
- One of the key applications for such products is in the medical and allied sector.
- The challenge there is lack of standards since it (3D printing) is a very niche and new domain. There are no global qualifications and certification norms.
- Other key areas of focus include the auto and ancillary auto and motor spare part business, such as engines, interior and exterior parts of luxury vehicles, or landing gear, complex brackets, and turbine blades.
- There can be some application of it in consumer electronics, printed circuit boards, clothing, toys and jewellery as well.



- Asia leads the world in 3D printing, and about 50 per cent of its market is cornered by China, followed by Japan at 30 per cent, and South Korea 10 per cent. But globally, the US remains the leader, with more than 35 per cent market share.
- Another key challenge is to convince the industry and ministries to push for its adoption in their respective sectors.
- Any new technology, which is not understood easily, faces a tough time.

6.22.Russian S-400 missile system

- Context: The United States has imposed sanctions on Turkey over acquisition of Russian S-400 air defence systems. US has also removed it from an F-35 jet program last year.

What is the S-400 air defence missile system?

- The S-400 Triumf, (NATO calls it SA-21 Growler), is a mobile, surface-to-air missile system (SAM) designed by Russia.
- It is the most dangerous operationally deployed modern long-range SAM (MLR SAM) in the world, considered much ahead of the US-developed Terminal High Altitude Area Defense system (THAAD).
- The system can engage all types of aerial targets including aircraft, unmanned aerial vehicles (UAV) and ballistic and cruise missiles within the range of 400km, at an altitude of up to 30km.
- The system can track 100 airborne targets and engage six of them simultaneously.
- It represents the fourth generation of long-range Russian SAMs, and the successor to the S-200 and S-300.
- The S-400's mission set and capabilities are roughly comparable to the famed US Patriot system.
- The S-400 Triumf air defence system integrates multifunction radar, autonomous detection and targeting systems, anti-aircraft missile systems, launchers, and command and control centre.
- It is capable of firing three types of missiles to create a layered defence.
- The S-400 is two-times more effective than previous Russian air defence systems and can be deployed within five minutes.
- It can also be integrated into the existing and future air defence units of the Air Force, Army, and the Navy.
- The first S-400 systems became operational in 2007 and is responsible for defending Moscow.
- It has been deployed in Syria in 2015, to guard Russian and Syrian naval and air assets.
- Russia has also stationed S-400 units in Crimea to strengthen Russia's position on the recently annexed peninsula.
- From India's point of view, China is also buying the system.
- In 2015, Beijing signed an agreement with Russia to purchase six battalions of the system.
- Its delivery began in January 2018.

- India's acquisition is crucial to counter attacks in a two-front war, including even high-end F-35 US fighter aircraft.
- In October 2015, Defence Acquisition Council considered buying 12 units of S-400 for its defence needs.
- But, on evaluation, in December 2015, five units were found adequate.
- The deal is worth about USD 5 billion.
- The deal is expected to be signed soon between Russia and India.
- Turkey and Saudi Arabia are negotiating a deal with Russia, while Iraq and Qatar have expressed interest.

What is CAATSA, and how did the S-400 deal fall foul of this Act?

- Countering America's Adversaries through Sanctions Act (CAATSA) was passed unanimously by the US Congress.
- Its core objective is to counter Iran, Russia and North Korea through punitive measures.
- Title II of the Act primarily deals with sanctions on Russian interests such as its oil and gas industry, defence and security sector, and financial institutions, in the backdrop of its military intervention in Ukraine.
- Section 231 of the Act empowers the US President to impose at least five of the 12 listed sanctions — enumerated in Section 235 of the Act — on persons engaged in a "significant transaction" with Russian defence and intelligence sectors.
- CAATSA, if implemented in its stringent form, will affect India's defence procurement from Russia.

- Apart from the S-400 air defence system, Project 1135.6 frigates and Ka226T helicopters will also be affected.
- Also, it will impact joint ventures, like Indo Russian Aviation Ltd, Multi-Role Transport Aircraft Ltd and Brahmos Aerospace.
- It will also affect India's purchase of spare parts, components, raw materials and other assistance.
- Most of India's weapons are of Soviet/Russian origin – nuclear submarine INS Chakra, the Kilo-class conventional submarine, the supersonic Brahmos cruise missile, the MiG 21/27/29 and Su-30 MKI fighters, IL-76/78 transport planes, T-72 and T-90 tanks, Mi-series of helicopters, and Vikramaditya aircraft carrier.
- How did the exemption for India come about?
  - ✓ CAATSA impacts Indo-US ties and dents the image of the US as a reliable partner.

What's in it for Washington?

- The US sees India as a major market for the US defence industry.
- In the last one decade, it has grown from near zero to USD 15 billion worth of arms deals.
- US has bagged more than $15 billion in arms deals including for the C-17 Globe master and C-130J transport planes, P-8 (I) maritime reconnaissance aircraft, M777 light-weight howitzer, Harpoon missiles, and Apache and Chinook helicopters.
- In percentage terms, the US share of Indian arms imports total 23 per cent in terms of the number of contracts and 54 per cent by value.
- This value is all set to increase further with the US likely accepting an Indian request for Sea Guardian drones.

6.23.IMSAS, ASTRA Mk-I, BOSS

- Context: Defence Minister handed over three indigenously developed systems to Army, Navy and Air Force
- Indian Maritime Situational Awareness System (IMSAS) to the Chief of Naval Staff
- ASTRA Mk-I Missile to Air Chief Marshal
- Border Surveillance System (BOSS) to the Chief of Army Staff General
- Border Surveillance System, has already been deployed in Ladakh against the Chinese troops
- An all-weather electronic surveillance system successfully designed and developed by Instruments Research & Development Establishment (IRDE), Dehradun.
- The system has been deployed at Ladakh border area for day and night surveillance.
- It facilitates monitoring and surveillance by automatically detecting the intrusions in harsh high-altitude sub-zero temperature areas with remote operation capability.
- It is being produced by Bharat Electronics Limited (BEL), Machlipatnam.

- The IMSAS is state-of-the-art, fully indigenous, high performance intelligent software system that provide Global Maritime Situational Picture, Marine planning tools and Analytical capabilities to Indian Navy.
- The system provides Maritime Operational Picture from Naval HQ to each individual ship in sea to enable Naval Command and control (C2).
- Centre for Artificial Intelligence & Robotics (CAIR), Bengaluru and Indian Navy has jointly conceptualized and developed the product and with the BEL, Bengaluru carrying out its implementation.
- The ASTRA Mk-I is the indigenously developed first Beyond Visual Range (BVR) Missile, which can be launched from Sukhoi-30, Light Combat Aircraft (LCA), Mig-29 and Mig-29K.
- Globally, very few countries have expertise and capabilities to design and produce this class of weapon system.
- ASTRA weapon system has been developed by Defence Research & Development Laboratory (DRDL) and production by Bharat Dynamics Limited (BDL) Hyderabad.
- These high technology systems have completed the design and development cycles.
- DRDO developed the systems handed over to the chiefs of all three-armed forces. It is the Research and Development wing of Ministry of Defence, Government of India.

6.24.Types of malaria

- Context: A not very common type of malaria, Plasmodium ovale, has been identified in a jawan in Kerala. The soldier is believed to have contracted it during his posting in Sudan, from where he returned nearly a year ago, and where Plasmodium ovale is endemic.

Types of malaria

- Malaria is caused by the bite of the female Anopheles mosquito, if the mosquito itself is infected with a malaria parasite.
- There are five kinds of malarial parasites — Plasmodium falciparum, Plasmodium vivax (the commonest ones), Plasmodium malaria, Plasmodium ovale and Plasmodium knowlesi.
- Therefore, to say that someone has contracted the Plasmodium ovale type of malaria means that the person has been infected by that particular parasite.
- In India, out of 1.57 lakh malaria cases in the high-burden states of Odisha, Chhattisgarh, Jharkhand, Meghalaya and Madhya Pradesh in 2019, 1.1 lakh cases (70%) were cases of falciparum malaria, according to a statement by the Health Ministry on December 2.
- In 2018, the National Vector-borne Disease Control Programme (NVBDCP) estimated that approximately 5 lakh people suffered from malaria (63% were of Plasmodium falciparum)
- The recent World Malaria Report 2020 said cases in India dropped from about 20 million in 2000 to about 5.6 million in 2019.

Plasmodium ovale

- P ovale rarely causes severe illness.

- P ovale is very similar to P vivax, which is not a killer form.
- Symptoms include fever for 48 hours, headache and nausea, and the treatment modality is the same as it is for a person infected with P vivax.
- P ovale is no more dangerous than getting a viral infection.
- It is termed ovale as about 20% of the parasitised cells are oval in shape.
- It is possible for the parasite to remain in the spleen or liver of the body for a long time, even years, after the mosquito bite, and the person could become symptomatic later.
- Distinguishing between P vivax and P ovale may be tricky Cases in India.
- According to scientists at the National Institute of Malaria Research (NIMR), the Kerala case could be an isolated one and there are no recorded cases of local transmission so far.
- Previously, too, isolated cases were reported in Gujarat, Kolkata, Odisha and Delhi. However, no local transmission has been recorded — which means these cases have been acquired.
- P ovale malaria is endemic to tropical Western Africa.
- According to scientists at NIMR, P ovale is relatively unusual outside of Africa and, where found, comprises less than 1% of the isolates.