EXCEL QUEST

EXCEL CIVILS ACADEMY
EMPOWERING FUTURE LEADERS

COP21·CMP11
PARIS 2015
UN CLIMATE CHANGE CONFERENCE

5 years of Paris agreement

India's first driverless metro

Vaccine for covid

Israel-Morocco peace deal

CHABAHAR

550 NM

786 NM

KANDLA

MUMBAI

Joint Use Chabahar Port

Nuclear reactor on Moon

DRAFT NATIONAL RAIL PLAN

Zomi Tribe

Director's message

Dear Aspirants,

At the outset, I would like to wish you and your families a very happy and prosperous new year 2021. Though the year 2020 began on a very bright note all over the world with lots of hopes and expectations on all fronts, it was short lived as the outbreak of once in a centuries rare pandemic COVID19 engulfed the entire globe affecting every aspect of human life which not only resulted in millions of deaths, but also completely crippled the economies rendering millions jobless and never seen before recession. Most of the Countries went into complete lockdown to slowdown the spread of the deadly Virus and Scientists and Doctors worked tirelessly to produce a suitable vaccine to insulate the mankind from this Pandemic reported to have originated from Wuhan Province in China.

While some countries claimed discovery of vaccine and has gone public about it, the Virus continues to rage in most of the advanced countries in Europe, USA, Japan etctriggering a second wave compelling some of the countries to once again declare a lockdown to arrest the spread and loss of precious lives. However, India scripted history by developing appropriate vaccine and undertaking mass vaccination of the entire population based on certain criteria.

January 16, 2021 will go down as a red letter day in the Indian medical history as the Prime Minister of India launched a mega vaccination drive. Two 'Made in India' vaccines, COVISHIELD and COVAXINE developed and produced indigenously by Indian Scientists and Researchers are being administered to 3 Crore frontline COVID WARRIORS in the first Phase followed by the rest thereby covering the entire population in a phased manner, which can be termed as ' Mother of all vaccinations' in India in the recent history. Though US and China have managed to inoculate about 3,00,000 people in a single day weeks after they began, India is expected to reach the tally on the first day itself by inoculating 3,00,000 potential recipients across 3,006 centres with over 16 million doses already at hand.

Such a herculean task couldn't have been possible without scientific knowledge, institutional experience and manufacturing might coupled with robust planning and weeks of logistical preparations. Numerous vaccination sites were identified and demarcated, storage facilities checked and readied, an electronic platform coded into place and long lists of potential recipients drawn up. Each of these aspects is meant to address the initial challenges that other countries seem to have struggled with-of ready stock, local-level delivery sites, coordination and records and knowing whom to vaccinate first.

Since different Covid-19 vaccines require different temperatures and different handling procedures, **cold chain facilities**, including equipment and procedures used in transport and storage, are a critical aspect before they are eventually administered to the masses. For example, some of the vaccines undergoing phase III trials now must be stored at temperatures as cold as minus 94 degrees Celsius. So, what is a cold chain? What are the issues in Covid-19 distribution?

According to the World Health Organisation (WHO), 'cold chain' is a system of storing and transporting vaccines at recommended temperatures from the point of manufacture to the point of use. Thus, a cold chain involves three major components of infrastructure: planes, trucks and cold storage warehouses. Without a proper cold chain facility, vaccines face the risk of being exposed to temperatures outside the recommended range, resulting in reduction of potency and wastage. According to a report by the International Air Transport Association's Center of Excellence for Independent Validators in Pharmaceutical Logistics, 25 per cent of vaccines are degraded by the time they arrive at their destination while temperature errors cause losses around $34.1 billion annually. Vaccines are delicate products that can be damaged in excessive heat, light, or cold. A temperature-controlled 'cold' supply chain is crucial to their transport and storage, especially in a vast, hot country like India. In anticipation of the arrival of a vaccine for Covid-19, the government identified and prepared additional cold chain storage facilities for the expected enormous volumes that will be needed to inoculate the entire population.

With hospitals expected to be the initial sites where the first vaccines would be administered, several of them lack ultra cold freezers since most drugs and vaccines don't need them. The chickenpox vaccine is one of the few shots that needs to be stored frozen while flu vaccines require only refrigeration. Besides, a number of other components like vials, stoppers, gauze, alcohol swabs, syringes are also required in huge quantities to inoculate the masses. India, which has the capacity to manufacture more than 2 billion units of these vials, is being tapped by international players for supplies. India has more than 27,000 cold chain points of which 750 are located at the district level and above. The rest are located below the district level, according to government data.

Dispelling all apprehensions and rumours regarding the efficacy of the vaccine and its possible reactions among the recipients, various prominent persons among the front line workers like Doctors set an example by being the first to get the COVID-19 Vaccine jab. However, the efficacy of the vaccine will be felt only after receiving the second dose for which the Hon'ble PM of India made an appeal to all the Citizens of the Country not to miss the second dose. While the launch of mega vaccination drive by the PM is a milestone in India's fight against COVID-19, there is no room for complacency as most of the western countries are going through second wave with new variants of COVID-19 afflicting the people in England and Africa. The UK and South African virus variants have changes in the spike gene consistent with the possibility that they are more infectious," says Prof Lawrence Young at the University of Warwick.

Though the discovery of vaccination is a great breakthrough in the mankind's fight against the rare virus, the basic protocols like social distancing, wearing face masks and hand sanitisation still needs to be followed till the pandemic curve is completely flattened all over the world while simultaneously restoring normal day to day economic activities to pre COVID-19 days.

Best wishes.

K. Rajendra Kumar IPS (Retd.)

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1. NATIONAL

1.1 HELMET STANDARDS

- The government said only Bureau of Indian Standards (BIS)-certified helmets would be manufactured and sold in India for two-wheelers.
- This would help in avoiding sale of low-quality two-wheeler helmets in the country, which would help in protecting persons involved in accidents from fatal injuries, the Ministry of Road Transport and Highways said in a statement.

Background

- "The Ministry of Road Transport and Highways has issued the 'Helmet for riders of Two Wheelers Motor Vehicles (Quality Control) Order, 2020'.
- "Protective helmets for two-wheeler riders have been included under compulsory BIS certification and the publication of the Quality Control Order," it said.

Highlights

- Following the directions of the Supreme Court Committee on Road Safety, a committee was formulated to consider lighter helmets in India suiting the country's climatic conditions and that for ensuring compliance among citizen to wear the helmets.
- The committee had experts from different fields, including expert doctors from AIIMS and also from BIS.
- The committee in March 2018, after detailed analysis in its report, recommended lighter helmets in the country, and the ministry accepted the report.
- According to the recommendations of the committee, the BIS has revised specifications through which it is expected to make lighter helmets.
- The total number of two-wheelers being manufactured in India annually stands at about 1.7 crore.
- The International Road Federation, a Geneva-based global road safety body working for better and safer roads worldwide, welcomed the road transport ministry's move to bring helmets for two-wheeler riders under the mandatory BIS regime.

1.2 MOTOR VEHICLE AGGREGATOR GUIDELINES 2020

- Ride-hailing aggregators such as Ola and Uber have been brought under the Centre's regulation, implying greater scrutiny and stringent penalties for any non-compliance related to passenger fare and labour rules like working hours of drivers.
- Government control over the cab tariff structure tops the list of regulations.
- The new norms, as per the Motor Vehicle Aggregator Guidelines 2020, have mandated a cap on surge price, preventing aggregators from charging more than 1.5 times of the base fare.

Background

- The new legal framework would also mean a driver working with Ola, Uber or similar aggregator companies cannot be logged in for more than 12 hours in a day.
- There has to be a mandatory 10-hour break after working for 12 hours.
- For cancellation of bookings, either by the driver or the rider, the penalty has been fixed at 10 per cent of the fare, but it cannot exceed Rs 100.

Highlights

- The cab aggregator stares at the suspension of licence on multiple grounds —if it fails to ensure safety of its riders, if it charges higher rates repeatedly and in case it fails to comply with the contractual obligations towards drivers.
- If the aggregator receives more than three suspensions in a financial year, its licence will be cancelled and the aggregator will be forced to stop operations with immediate effect.
- Aggregators may provide pooling facilities to only those riders whose KYC (know your customer) details are available and who will travel along the same route but with varied stoppages under a virtual contract through the app.

1.3 SCO ONLINE INTERNATIONAL EXHIBITION

Shri M. Venkaiah Naidu, Vice President of India & Chair of the SCO Council of Heads of Government in 2020, launched the first ever SCO Online Exhibition on Shared Buddhist Heritage, during the 19th Meeting of the SCO Council of Heads of Government (SCO CHG), held in New Delhi, in videoconference format.

Background

- This SCO online International exhibition, first ever of its kind, is developed and curated by National Museum, New Delhi, in active collaboration with SCO member countries.
- The exhibition deploys state of the art technologies like 3D scanning, webGL platform, virtual space utilization, innovative curation and narration methodology etc.

Highlights

- Buddhist philosophy and art of Central Asia connects Shanghai Cooperation Organization (SCO) countries to each other.
- This online international exhibition presents an excellent opportunity for visitors to access, appreciate and compare Buddhist art antiquities from SCO countries on a single platform and from the comfort of their home.
- Such transnational online exhibition also has potential to connect, heal and rejuvenate communities in current pandemic times.
- The international exhibition gives a glimpse of the artistic wealth displayed in various museums across Asia, and represents the artistic excellence embedded within an eclectic historical timeline spanning across the development of different Schools of Buddhism.
- The participating institutions are National Museum (New Delhi), Indian Museum (Kolkata), National Museum of Kazakhstan, Dun Huang Academy (China), National Historical Museum of the Kyrgyz Republic, Museums of Pakistan, State Museum of Oriental Art, Moscow (Russia), National Museum and National Museum of Antiquities, Tajikistan and renowned archaeological sites of Uzbekistan.

1.4 LAKSHADWEEP AND ANDAMAN AND NICOBAR TO MEET 100 PERCENT ENERGY NEEDS THROUGH RENEWABLE ENERGY

- In a positive development, Union Minister of State (Independent Charge) for Power and New and Renewable Energy RK Singh has stated on record that the government is targeting Andaman & Nicobar, and Lakshadweep Islands should be able to meet their total energy requirement from renewable energy sources.
- He emphasised that the Government has already given the UTs targets to become totally green.

Highlights

- This comes as a major boost for the Island territories and may lead to a significant transformation in the way by which they meet their energy needs.
- Meanwhile, Singh also shared that the nation has already installed about 1,36,000 megawatts (MW) of renewable energy capacity.
- He also informed the gathering that additional 57,000 MW of renewable power generation capacity is under implementation at the moment.

- While the Government is targeting 175 GW of total renewable energy generation capacity by 2022 when India shall complete 75 years of Independence from the usurious British Raj, Singh shared that by 2030, the nation was targeting to install a capacity for 450 GW of renewable energy.

1.5 MARCOS

- Amid border standoff with China along the Line of Actual Control (LAC) in Ladakh, India has deployed its marine commandos MARCOS in PangongTso lake area, one of the key friction areas with the Chinese PLA troops.
- Citing government sources, news agency ANI said that the deployment of MARCOS in Eastern Ladakh is aimed at enhancing the integration of the tri services in the area and provide the commandos exposure to extreme cold weather conditions.

Background

- Indian Air Force's Garud, Indian Army's Para Special Forces and Cabinet Secretariat's Special Frontier Force have already been guarding the area in Eastern Ladakh for long.
- "The MARCOS have been deployed in the Pangong lake area where the Indian and Chinese forces have been engaged in a conflict situation since April-May timeframe this year," the agency quoted government sources as saying.

Highlights

- The MARCOS commandos will also get new boats to carry out operations in the PangongTso lake area.
- During the early days of the India-China conflict, India moved its Garud Special Forces to the strategic heights along the LAC to keep a vigil on any fighter or other enemy aircraft violating the Indian air space.
- With standoff still not resolved, the Indian Army has completed the establishment of habitat facilities for all troops deployed in eastern Ladakh to ensure operational efficiency in the harsh winter months.
- The Army said that apart from smart camps with integrated facilities which have been built over the years, additional state-of-the-art habitats with integrated arrangements for electricity, water, heating facilities, health and hygiene have been recently created to accommodate the troops.
- The eastern Ladakh region witnesses temperature dipping to minus 30-40 degrees Celsius and experiences up to 40 feet of snowfall after the months of December and January. In addition, road access to the region also gets affected due to the heavy snowfall in the area.

1.6 RAMAYAN CRUISE TOUR

- Union Minister of Ports, Shipping and Waterways, GOI announced that the Ramayan Cruise Tour will be launched soon on the Saryuriver in Ayodhya, Uttar Pradesh.

- It will be first-ever luxury cruise service on the holy Saryu river (Ghagra/National Waterways-40).

About cruise

- The cruise will be equipped with all the luxury comfort, safety and security features at par with the global standards.
- The 80-seater cruise will be fully air-conditioned.
- It will have large glass windows so that the tourists can experience the scenic beauty of Ghats.
- Kitchen and pantry facilities will also be available for the tourists.
- The cruise will have bio-toilets and hybrid engines system for the 'zero effect' on the environment.

Highlights

- The project aims to give the mesmerizing experience of the divine journey to devotees visiting holy city Ayodhya.
- The interior of the cruise and the boarding point will be based on the theme of Ramcharitmanas.
- The tour will be of 1 to 1.5-hour duration, covering approximately 15-16 km distance.
- It will feature a 45-60 minutes video based on Ramcharitmanas by GoswamiTulsidas, depicting the period from the birth of Lord Ram to his Rajyabhishek.
- Selfie points inspired by different episodes of Ramayan will also be set up.
- The tour will be followed by SaryuAarti where the tourists can actively participate.

1.7 AADI MAHOTSAV

- Tribal Affairs Minister ArjunMunda launched the virtual edition of Aadi Mahotsav- Madhya Pradesh.
- The 10-day long festival, commencing, is being hosted on the Tribes India website (www.tribesindia.com).
- The main focus is on the tribal craft and culture of Madhya Pradesh.

Background

- The highlights of the virtual launch included a virtual tour of the artisans' work place and glimpses of the tribal dance and music from Madhya Pradesh.
- It was also announced that the next focus state from the 11th December would be Gujarat, following which the spotlight would shift to Bengal from the 21st December, 2020.

About the Mahotsav

- The Aadi Mahotsav – A Celebration of the Spirit of Tribal Culture, Crafts, Cuisine and Commerce – is a successful initiative that was commenced in 2017.
- The festival was an attempt to familiarise the people with the rich and diverse craft, culture of the tribal communities across the country, in one place.

- Held between 16-30 November, 2019 in New Delhi, the 15-day festival featured an exhibition-cum-sale of tribal handicrafts, art, paintings fabric, jewellery.
- More than 400 tribal artisans and producers from across India enriched the festival with their participation and it received tremendous response.
- The event will showcase the tribal traditions of the various tribal communities – by having their crafts and natural produce on display.
- Videos showcasing different aspects of their culture – music, dance etc, will also be shared.
- In essence, it will still be a celebration of the tribes and their diverse, varied lifestyle but on a different platform.

1.8 "CHILD-FRIENDLY" POLICE STATION LAUNCHED IN PUNE

- A "child-friendly" police station set up in accordance with the guidelines laid down by the National Commissioner for Protection of Child Rights (NCPCR) was launched in Pune.
- This police station will work towards character building among children and will also work in changing the notion that police are not enemies but friends of people.

Background

- Launched with an aim to ward off fear among children, the child-friendly police station will work towards raising high morale.
- A message that police are not the enemies of people but friends will also be spread through these unique police station that has come up in the premises of Lashkar police station in Pune.
- The child friendly police station houses books and and toys and will also work towards character building among children.

Highlights

- IIT Kanpur Director, Dr AbhayKarandikar said the "child-friendly police station is an innovative concept in the direction of preventing juvenile crimes and children reforms.
- He said, Pune police have worked with Hope for Children Foundation to set up this.
- Pune police commissioner Amitabh Gupta said this will be replicated at other police stations if it turns out to be a success.

1.9 ROSHNI ACT

The Jammu & Kashmir administration has recently released a series of lists of alleged beneficiaries of the Roshni Act of 2001, now scrapped, which gave ownership rights to the unauthorized occupants of state land against payment of a premium.

Background

Following a recent order by the Jammu & Kashmir High Court, the administration has annulled the Act (it was earlier repealed prospectively) and decided to retrieve land transferred under the Roshni scheme.

Highlights

- Formally the Jammu and Kashmir State Land (Vesting of Ownership to the Occupants) Act, 2001, Roshni Act was passed by the then National Conference government to give ownership to people in possession of state land, with a cut-off of 1990, and against payment, as determined by the government.
- Since the aim was to generate resources for hydroelectric power projects, it was called Roshni (Light) Act.
- In its 2014 report, the CAG termed the scheme an Rs-25,000-crore scam.
- In October 2018, then Governor Satya Pal Malik repealed the Roshni Act prospectively.

1.10 HONEY MISSION

- Responding to the Prime Minister's call for Aatmanirbhar Bharat, KVIC engaged hundreds of migrant workers in Uttar Pradesh and Bihar and engaged them with its flagship schemes like Honey Mission, KumharSashaktikaranYojana and Project DigniTEA among others.
- Apart from distributing them with essential tool kits; KVIC also provided technical training and supervision to the new beekeepers so as to support them.

Background

- The self-sustainability measures initiated by Khadi and Village Industries Commission (KVIC) in wake of the Covid-19 pandemic have begun yielding results.
- The distressed migrant workers who were engaged with KVIC's Honey Mission in Uttar Pradesh in the month of August, have reaped their first honey harvest and are awaiting a bumper yield in the months from December to March.

Highlights

- To begin with, five migrant workers in Western UP's Muzaffarnagar district extracted 253 kg of honey from their 50 honey bee boxes that were distributed to them on August 25 this year.
- Raw honey sells at an average of Rs 200 per kg and at this rate it is estimated to fetch nearly Rs 50,000 to the migrant workers.
- This means an average income of Rs 10,000 to each of these beneficiaries.
- A total of 700 bee boxes were distributed to 70 migrant workers after training by KVIC in this region.
- Honey extraction from remaining bee boxes will continue in coming days.

- The production of honey from these boxes will increase by at least 5 times in the months from December to March as the Eucalyptus and Mustard crop will be in full bloom during the season.
- Each of these bee boxes will produce nearly 25 kg of honey during the peak season.
- Further, the beekeepers will be able to migrate their boxes to nearby states like Haryana, Rajasthan and Eastern Uttar Pradesh where honey bees will find abundance of pollen and nectar and thus add to honey production.

1.11 THEREMIN INSTRUMENT
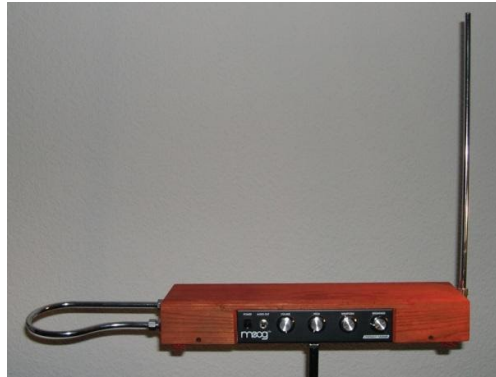
- The Theremin musical instrument will turn hundred years old in 2020.
- It has revolutionised the music industry by being the predecessor of the modern synthesizer.

Background

- Theremin is a musical instrument.
- It is considered as the world's first electronic instrument and it turned 100 years old in 2020.
- It was developed by Leon Theremin.
- It generates sound by modulation of electromagnetic waves and this is done without the player having to even touch the instrument.
- It has a vertical antenna for controlling the tone and a looped antenna for controlling the volume.

About the instrument

- Leon Theremin was a scientist during the period when radio waves were still a new phenomenon in technology.
- While he was experimenting with radio waves in his laboratory, he discovered that operators working on radio waves made strange sounds when he moved his hands around it.
- Being a classical musician and trained in Cello the sounds stimulated his interests.
- He then realised that he has created a new musical instrument that played without touching.
- This was the first electronic instrument in the world and was called Theremin.
- The instrument turned hundred years old in 2020.

- The invention of the instrument revolutionized music.
- It has its history tied to the prisons of Siberia, world war and Hollywood films of 20th century.

1.12 WORLD MALARIA REPORT 2020
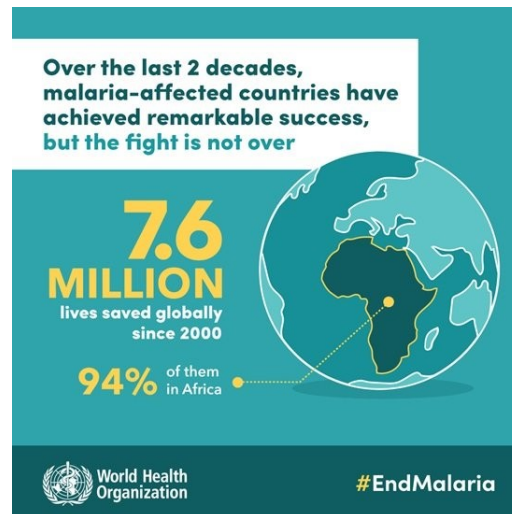
- The World Malaria Report (WMR) 2020 released by WHO, which gives the estimated cases for malaria across the world, based on mathematical projections, indicates that India has made considerable progress in reducing its malaria burden.
- India is the only high endemic country which has reported a decline of 17.6% in 2019 as compared to 2018.

Background

- The Annual Parasitic Incidence (API) reduced by 27.6% in 2018 compared to 2017 and by 18.4% in 2019 as compared to 2018.
- India has sustained API less than one since year 2012.

Highlights

- India has also contributed to the largest drop in cases region-wide, from approximately 20 million to about 6 million.
- The percentage drop in the malaria cases was 71.8% and deaths was 73.9% between 2000 to 2019.
- India achieved a reduction of 83.34% in malaria morbidity and 92% in malaria mortality between the year 2000 (20,31,790 cases, 932 deaths) and 2019 (3,38,494 cases, 77 deaths), thereby achieving Goal 6 of the Millennium Development Goals (50-75% decrease in case incidence between 2000 and 2019).
- Decrease in incidence of Malaria cases is also exhibited in the year-on-year tally.
- The cases and fatalities have declined significantly by 21.27% and 20% in the year 2019 (3,38,494 cases, 77 deaths) as compared to 2018 (4,29,928 cases, 96 deaths).

- The total number of malaria cases reported in 2020, till October, (1,57,284) has further decreased by 45.02 percent as compared to corresponding period of 2019 (2,86,091).

1.13 CONSENT FOR CONTEMPT

- Attorney General for India K KVenugopal recently granted consent to initiate criminal contempt of court proceedings against comic illustrator RachitaTaneja for allegedly scandalising the judiciary through her tweets and illustrations.
- A law student had brought the tweets and illustration by Taneja — made in the context of the Supreme Court's decision to grant bail to Republic TV editor-in-chief ArnabGoswami who was arrested for allegedly abetting a suicide — to the notice of the AG.

Background

- The Contempt of Courts Act, 1971, lays down the law on contempt of court. Section 15 of the legislation describes the procedure on how a case for contempt of court can be initiated.
- In the case of the Supreme Court, the Attorney General or the Solicitor General, and in the case of High Courts, the Advocate General, may bring in a motion before the court for initiating a case of criminal contempt.
- However, if the motion is brought by any other person, the consent in writing of the Attorney General or the Advocate General is required.
- The motion or reference made for initiating the case will have to specify the contempt of which the person charged is alleged to be guilty.

Highlights

- Contempt of Court refers to the offence of showing disrespect to the dignity or authority of a court.
- The objective for contempt is stated to be to safeguard the interests of the public if the authority of the Court is denigrated and public confidence in the administration of justice is weakened or eroded.
- The Supreme Court and High Courts derive their contempt powers from the Constitution.
- The Contempt of Court Act, 1971, outlines the procedure in relation to investigation and punishment for contempt.

1.14 INTERFAITH MARRIAGE

- A Division Bench of S. Sujatha and Sachin Shankar Magadam JJ., disposed off the petition due to the limitation of its scope regarding the production of the individual only before the Court.
- The instant writ petition in the nature of habeas corpus was filed by the petitioner seeking direction to respondents to produce Kum. Ramya G. before Court and set her at liberty.

Background

- The daughter of the petitioner Kum Ramya G was presented before the Court by the jurisdictional police and submitted that she is staying at Mahila Sakshatha Samithi, Vidyaranyapura and pursuant to the complaint lodged by her alleging infringement of her right to liberty caused by her parents relating to her marriage with the petitioner.

- She further submitted that she is in love with one of her colleagues working at IQVIA as a software engineer but her parents are not giving permission.

Highlights

- The Court thus observed that a right of any major individual to marry the person of his/her choice is a fundamental right enshrined in the Constitution of India and the said liberty relating to the personal relationships of two individuals cannot be encroached by anybody irrespective of caste or religion.

- In light of the aforesaid observations, Court held that the petition being limited to production of the person before the Court only, no interference to be made in other reliefs.

1.15 NISARG GRAM

- Ministry of AYUSH will develop Nisarg Gram campus at Pune as the 21st Century abode of Naturopathy.

- "Nisarg Gram" will be the name of the upcoming new campus of National Institute of Naturopathy (NIN) at Pune.

About NIN

- NIN, Pune is an Autonomous Body under the Ministry of AYUSH.

- The institution was called All India Nature Cure Foundation and was set up under Gandhi Ji's leadership in 1945 at the same premises where the NIN presently functions.

- It was subsequently taken over by the Central Government and structured into the present National Institute of Naturopathy.

Highlights

- This will invoke recollections of Mahatma Gandhi's Nature Cure campaign of 1946 at the "NisargUpchar" Ashram a village near Pune.

- Nisarg Gram will have many innovations and novelties incorporated in the project per se and the curriculum of the Naturopathy course.
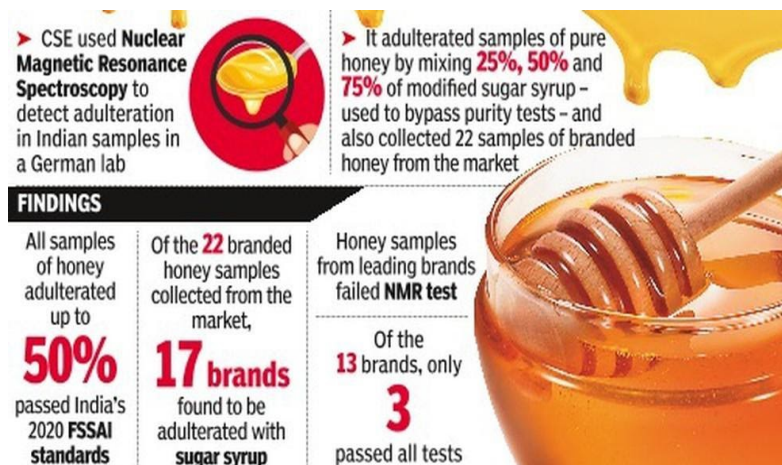
- It is a future-orientated institute which has a science-based approach, Gandhian spirit and social relevance.

1.16 NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY

- An investigation by the Centre for Science and Environment (CSE) has found that a majority of samples collected from both big and small brands that sell honey don't pass an advanced quality control test.
- These findings were revealed after the CSE tested 22 samples from 13 manufacturers to determine the level of adulteration in honey that is commercially available.

Background

The brands that were tested are Dabur, Patanjali, Apis-Himalaya, Baidyanath, Zandu, Hitkari, Dadev, Indigenous, Hi Honey, SocieteNaturelle, Saffola, MarkfedSohna and Nature's Nectar.

Highlights

- Honey is among the most adulterated food products in the world.
- Adulteration typically takes the form of the addition of various sugary syrups.
- Tests are usually designed to determine the presence of C4, C3 sugars and foreign oligosaccharides.
- According to CSE, C4 sugars are derived from plants such as corn and sugarcane, while C3 sugars are derived from rice and beetroot.
- Foreign oligosaccharides are starch-based polysaccharide sugars, such as from rice and corn.

1.17 GOVERNMENT ANNOUNCES LIST OF 10 BEST PERFORMING POLICE STATIONS IN INDIA

- The government released a list of the top 10 police stations in India for the year 2020.
- In a press release, the government noted that the list was in accordance with Prime Minister NarendraModi's directions while addressing the 2015 Directors General of Police (DGP) Conference in Kutch, Gujarat.

Background

- The press release further stated that 2020's survey for the best police station was done by the Ministry of Home Affairs (MHA) under "challenging circumstances" due to the ongoing coronavirus disease (Covid-19) pandemic. It also said that Union home minister Amit Shah had noted that a "vast majority" of police stations shortlisted for the list were from small towns and rural areas.
- This, the release said, was also true for the 10 police stations finally listed as the best in the country.

Highlights

- The top 10 police stations were selected from a total of 16,671 police stations on certain parameters, the release said.
- From these, 75 police stations were selected for the next stage, out of which 10 were selected as the country's best police stations.
- A total of 4,065 respondents participated in the survey, the government said, while also acknowledging that all states and Union territories co-operated with it even during the pandemic period.

1.18 COMMON ENTRANCE TEST FOR VASRITIES

In what marks the first attempt, after the introduction of the new National Education Policy, at moving away from unrealistic cut-off marks for admissions to universities, the government is exploring the feasibility of holding a common entrance test for undergraduate admissions across all central universities from the next academic year.

Background

- The UGC set up a seven-member committee on December 23, headed by Vice-Chancellor of Central University of Punjab R P Tiwari, "to consider the issue (of) holding common entrance test at the undergraduate level only from the next academic year in central universities to provide a single platform for admission".
- The new NEP, released in July this year, advocates reducing the number of entrance tests to "eliminate the need for taking coaching for these exams".

Highlights

- There are 40-odd central universities run by the Ministry of Education (MoE) and, collectively, all of them have about 1 to 1.25 lakh seats across different disciplines at the undergraduate level, said a ministry officer.
- Of these, currently about 16 central universities, all set up under the UPA-II government, have a common entrance test for Bachelor's study.
- If the NEP suggestion is implemented, the National Testing Agency will be tasked to conduct a common aptitude test as well as specialised common exams for different disciplines at least twice a year, for admission to bachelor's in central universities.

1.19 HYPOTHERMIA

- Amid severe cold wave in the national capital and several other parts of North India, the Indian Meteorological Department (IMD) has issued an unusual advisory.
- In an impact-based advisory, the IMD has urged residents of the northernmost states to protect themselves from the biting cold by avoiding alcohol.

Background

- According to reports, severe cold wave conditions are likely in parts of Haryana, Punjab, Uttar Pradesh, Rajasthan and Delhi from December 29 onwards.
- Maximum temperature is also forecast to fall by 3 to 5 degrees Celsius after December 28.

Highlights

- In its impact-based advisory, the IMD said the weather conditions were likely to increase the risk of contracting illnesses like the flu, and could also lead to symptoms like runny/stuffy nose and nosebleeds, which usually set in or are aggravated due to prolonged exposure to the cold.
- The IMD also warned of frostbite, a condition where the skin turns pale, hard and numb and is eventually left with black blisters when exposed to extreme cold conditions.
- The notice also pointed out not to ignore shivering.
- To avoid reactions to the cold wave, the IMD shared a list of recommendations, one of which was avoiding alcohol as it "reduces your body temperature".
- The department also urged people to limit outdoor activities, moisturise their skin regularly with oil or cream, eat vitamin-C rich fruits and vegetables.
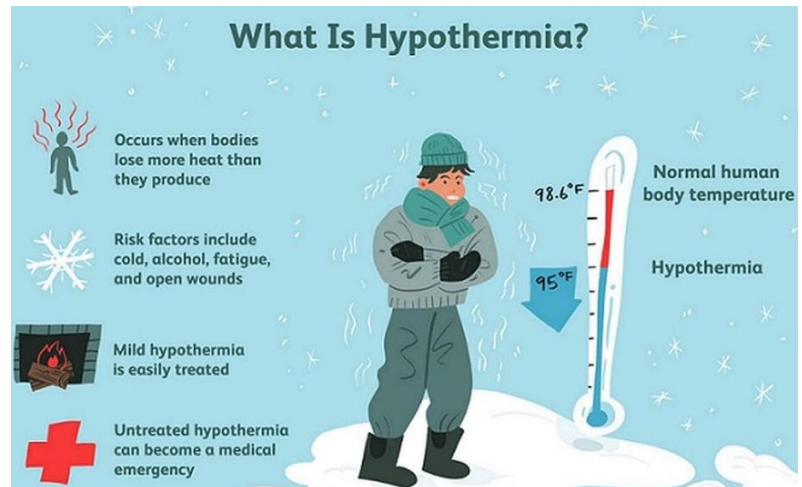
1.20 NATIONAL COMMON MOBILITY CARD

PM Modi virtually inaugurated India's first ever driverless train operations on the Delhi Metro's Janakpuri West-Botanical Garden route, as well as the fully operational National Common Mobility Card services on the Airport Express Line.

Highlights

- The fully automated trains will reduce human intervention in operations and offer more reliability and safety for commuters.
- This system also brings more flexibility in train operations.
- As a result, the number of trains in service can be regulated based on demand without depending on the availability of crew.

1.21 MONPA HANDMADE PAPER

The 1000-year old heritage art – the Monpa Handmade Paper of Arunachal Pradesh – which was driven to the extinction, has come to life once again, with the committed efforts of Khadi and Village Industries Commission (KVIC).

Background

- The art of making Monpa handmade paper originated over 1000 years ago.

- Gradually the art became an integral part of local custom and culture in Tawang in Arunachal Pradesh.

- Once produced in every household in Tawang, this handmade paper was a major source of livelihood for the locals.

- However, the handmade paper industry almost disappeared in the last 100 years; prompting KVIC to plan revival of this ancient art.

Highlights

- A Monpa handmade paper making unit in Tawang which not only aims at reviving the art but also engaging the local youths with this art professionally and earn.

- The fine-textured handmade paper, which is called Mon Shugu in the local dialect, is integral to the vibrant culture of the local tribes in Tawang.

- The paper has great historic and religious significance as it is the paper used for writing Buddhist scriptures and hymns in monasteries.

- The Monpa handmade paper, will be made from the bark of a local tree called Shugu Sheng, which has medicinal values too. Hence availability of raw material will not be a problem.

- Monpas used to sell these papers to countries like Tibet, Bhutan ,Thailanand and Japan as no paper making industry existed in these countries at that time. However, the local industry gradually began declining and the indigenous handmade paper was taken over by inferior Chinese paper.

1.22 PM-JAY SEHAT

The Prime Minister has launched Ayushman Bharat PM-JAY SEHAT to extend coverage to all residents of Jammu & Kashmir.

About PM-JAY SEHAT

- The full form of SEHAT is social, endeavour for health and telemedicine.

- Under this scheme, SEHAT cards will be distributed to all the eligible beneficiaries.

- All the eligible beneficiaries of Jammu and Kashmir can apply for the Scheme through common service centre operators

- Around 1 crore beneficiaries will cover under this scheme.

- All the eligible citizens of Jammu and Kashmir will get cashless treatment up to Rs 5 lakh under the Scheme.

1.23 UMBA VILLAGE IN LADAKH ELECTRIFIED

- Five Mohallas in Umba village received electricity connection

- The village which is 60 KM away from district headquarter Kargil, is situated in toughest terrain at 13,000 thousand feet height and remains cut off for five months during winters.

Background

- Umba village had no electricity till today.
- Under the guidance of Kargil Renewable Energy Development Authority (KREDA), the Global Himalayan Expedition (GHE) in partnership with the CSR project of Royal Enfield has installed a 17.5kW Solar Electricity system in Umba.

Highlights

- Daring the freezing minus 25 degrees temperatures, a team of 4 GHE engineers led by Shakir Hussain worked round the clock to set up 103 Solar Grids in a record time of just Five days.
- The system covers Massar Yuljuk, Malikbar Thama, Mailkbar Skilma, Shilabar and Madd hamlets in Umba village and serve with a total of 97 Households and 7 Masjids with more than 500 LED Lights, along with street lighting for the community.
- Each solar grid was provided with a battery back-up that will enable 4 days of continuous grid running even in cloudy conditions.
- GHE has come up with an innovative Solar Micro Grid solution using energy efficient LED lights and DC appliances that has changed the electrification scenario in the region.
- Over 100 remote villages, monasteries and hamlets of Leh, Kargil and Zanskar have been provided electricity in the last 5 years by GHE.

1.24 THOUBAL MULTIPURPOSE PROJECT

- Recently, the Union Home Minister has inaugurated the e-office and Thoubal Multipurpose Project (Thoubal Dam) in Imphal.
- The Thoubal Multipurpose Project on River Thoubal is located near the village Phayang in Manipur.
- The sanctioned project envisaged the construction of a 1120 m long earth dam across the river Thoubal. The Thoubal River Valley Multipurpose project, now known as Mapithel Dam, is a mega-dam.
- The project is implemented in the Mapithel area in the Phungyar subdivision of the Ukhrul district targeting to irrigate 21,000 hectares of cultivable land.
- The main purpose of the project is to utilize the water resource of the Yangwui Kong River which originates in the western hill slopes of Shiroi Hills and Hoomi in the Ukhrul District.
- The project has been undertaken by the Government of Manipur's Irrigation and Flood Control Department (IFCD), with assistance from the central government.

1.25 FINANCIAL GRANTS DISTRIBUTED TO NAMGHARS

- The Union Home Minister distributed financial grants to 8,000 Namghars under the Assam Darshan program.
- Namghars are traditional Vaisnavite monasteries of Assam.

Background

Namghars (literally meaning Prayer House) are places for congregational worship associated with the entire Assamese community and the Ekasarana sect of Hinduism, in particular, that is native to Assam.

Highlights

- Besides forming the primary structure used for worship, they also function as meeting houses and theatres for dramatic performances (bhaona).
- The Namghar, also called the kirtanghar, is also the central structure in the Sattras (monasteries of the Ekasarana religion) where the other buildings are positioned around it.
- Namghars were introduced in Assam by the Vaishnavite saints Damodaradeva, Madhavadeva and Sankaradeva for Assamese people where they can culture and practice naam (devotional songs) and Bhakti of God (devotion).

1.26 RVNL MARATHWADA RAIL COACH FACTORY

Notwithstanding the Covid-19 related lockdowns and challenges, Indian Railways' PSU, Rail Vikas Nigam Limited (RVNL) commissioned Marathwada Rail Coach Factory in Latur, Maharashtra with the production of the first coach shell.

Background

The factory was commissioned only about two years ago, according to a press communication from the Ministry of Railways issued, which added that the Marathwada Rail Coach Factory is expected to contribute significantly to the overall development of this aspirational region of Maharashtra by heralding a modern industrial ecosystem.

Highlights

- The Ministry stated that this factory has been designed with an initial capacity of manufacturing 250 MEMU/EMU/LHB/trainset type advanced coaches per annum.
- However, its capacity can be enhanced significantly as sufficient vacant space has been marked in the layout plan.
- The cost of this project amounts to Rs. 500 crore plus the land cost of Rs. 120 crore.
- The factory has been set up on 350 acres of land comprising 52,000 square metres of pre-engineered building sheds, three lines yard, electric substation with 33 kV supply, canteen, security and administrative blocks, and a residential colony in 24 acres.

- A 5 km long rail connectivity has been provided for movement of coaches from the factory to a new electronically interlocked Harangul railway station, which earlier used to be only a halt station.
- The factory has been equipped with the latest state-of-the-art machinery and plant, material handling systems, and various utilities, stated the Rail Ministry.
- Various green initiatives have been adopted in the project for sustainable development which includes an 800 kiloWatt shed roof-mounted solar power plant, sewage and wastewater treatment and recycling plant, rainwater harvesting, plantation of 10,000 trees, LED lighting, natural daylighting and ventilation in sheds.
- The Railway Ministry's press communication explained that the administrative block has also been built with green building concepts.

1.27 US PLANS TO SET UP A NUCLEAR REACTOR ON MOON

- USA's plan to set up the first nuclear reactor on the moon by the end of 2026.
- In early 2021, the US Department of Energy in collaboration with NASA intends to solicit industry design proposals.
- It also got an impetus with a recent White House directive.

Background

- The outgoing President Donald Trump, issued the "National Strategy for Space Nuclear Power and Propulsion".
- Under it, he asked Nasa to "initiate fission surface power project for lunar surface demonstration by 2027 with scalability to a power range of 40 kilowatt-electric and higher to support a sustained lunar presence and exploration of Mars".

Highlights

- The objective of NASA behind this was to establish a flight hardware system that is ready for integrating with the lunar lander by 2026 end.
- The nuclear reactor is known as the fission power system that will benefit future robotic and human expedition missions to the moon as well as Mars.
- The availability of safe, efficient, and readily available power is critical to these missions and a fission surface power system meets those requirements.
- The fission surface power system will be fully manufactured and assembled on earth and integrated on a lander as a payload.
- The system consists of four major subsystems including a nuclear reactor which is an electric power conversion unit, heat rejection array, and power management and distribution subsystem and will be designed to operate for up to 10 years.

1.28 V RAMAGOPAL RAO COMMITTEE CONSTITUTED

- The Indian Institutes of Technology (IITs) have a large number of faculty vacancies, as the student intake capacity was raised by over 50% during 2008-10.
- This was after reservation for Other Backward Classes students was introduced, and more IITs were opened during 2008-17.

Background

- Currently, there are 23 IITs, and reservation for Economically Weaker Sections (EWS) has been added.
- Since the ratio of students to teachers has come under strain.

Highlights

- The high bar for entry of teachers, starting with a doctoral degree, has shrunk the pool of eligible aspirants from reserved categories.
- The Education Ministry formed a committee to look at implementing the reservation system effectively.
- Student admissions and teachers' appointments are covered by the Central Educational Institutions (Reservation in Admission) Act, 2006, and the Central Educational Institutions (Reservation in Teachers' Cadre) Act, 2019.
- Beneficiaries belong to the Scheduled Castes, Scheduled Tribes, OBCs and EWS.

1.29 INDIA'S FIRST DRIVERLESS METRO

The first 'driverless' train will roll out on the 38-km Line 8 or Magenta Line of the Delhi Metro, which has a 390-km-long network spread across the national capital and adjoining cities such as Noida, Gurugram, Faridabad, Ghaziabad and Bahadurgarh.

Background

- Delhi Metro, now the country's largest urban mass rapid transit system, had commenced operations on December 24, 2002, on an 8.4-km stretch between Shahdara and Tis Hazari stations.
- Since then, its network has been growing, with another 61-km set to be added under the Phase IV expansion. Since 2002, Delhi Metro has also made several technological leaps in terms of operating trains, and the transition to 'driverless' mode is the latest in the series of changes over the last 18 years.
- The Centre has also notified changes in the Metro Railways General Rules, 2020 as the previous norms did not allow driverless services.
- Even now, trains are mostly remotely controlled from the command rooms of the DMRC known as Operations Control Centre (OCC), from where teams of engineers track and monitor in real time train movement across the DMRC network.

- The OCCs are akin to air traffic control towers equipped with large display walls and communication technology.
- DMRC has three OCCs, including two inside the metro headquarters and one at Shastri Park.
- But the level of control that the drivers or train operators have over trains vary from line to line.

1.30 ZOMI ETHNIC GROUP

Manipur's Zomi ethnic group has renewed its demand for the creation of the Zoland Territorial Council (ZTC) under the Sixth Schedule of the Constitution, a self-administered zone on the lines of the Bodoland Territorial Council in Assam.

About the group

- The Zou people or Zomi are an indigenous community living along the frontier of India and Burma.
- They are a subgroup of the Zo people (Mizo-Kuki-Chin).
- In India, they live with and are similar in language and habits to the Paite and the Simte peoples.
- In India, the Zou are officially recognized as one of the 33 indigenous peoples within the state of Manipur, and are one of the Scheduled tribes.
- According to the 2001 Census, the Zou/Jou population in Manipur is around 20,000, less than 3% of the total population.
- The community is concentrated in Churachandpur and Chandel districts of Manipur.

1.31 SWACHHATA ABHIYAN APP

- A mobile application to identify and geotag insanitary latrines and manual scavengers was launched by the Union Minister for Social Justice and Empowerment.

- He urged all citizens to download the app, "Swachhata Abhiyan", and through it provide the authorities concerned details of any insanitary latrine or manual scavenger they notice.

Objective

- This would help in rehabilitating all manual scavengers and replace insanitary latrines with sanitary ones.

- Census 2011 reported that there were over 26 lakh insanitary latrines in the country.

- The existence of insanitary latrines is the main reason for manual scavenging.

Highlights

- Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013, mandates survey of insanitary latrines, their demolition and construction of sanitary ones in their place.

- The government has been implementing Swachh Bharat Mission for the same purpose.

- Under the Swachh Bharat Mission, more than nine crore sanitary latrines have been constructed.

- The country has been declared as open-defecation-free.

- More than 66,000 manual scavengers have been identified since 2013-14 through surveys by states and also through a national survey in 194 districts.

- Over 57,000 manual scavengers who have submitted bank account details have been paid onetime assistance of Rs 40,000 each.

- The manual scavengers and their dependents are also provided skill training with monthly stipend of Rs 3,000 and subsidy up to Rs 3,25,000 on loans taken by them for self-employment projects.

1.32 RAHIM'S TOMB

A multi-disciplinary team of the Aga Khan Trust for Culture (AKTC), in partnership with the Archaeological Survey of India (ASI) and support of a corporate conglomerate, worked extensively on the project which married traditional craftsmanship with cutting-edge technology.

Background

- Rahim's tomb, Delhi's own monument of love built nearly 50 years before the iconic Taj Mahal, which stood in a ruinous condition with a "risk of collapse" has finally received a new lease of life after six-year-long "monumental conservation" work.

- A multi-disciplinary team of the Aga Khan Trust for Culture (AKTC), in partnership with the Archaeological Survey of India (ASI) and support of a corporate conglomerate, worked extensively on the project which married traditional craftsmanship with cutting-edge technology.

Highlights

- It is the grandest of his surviving buildings, inspired by the architectural style of Humayun's Tomb (built in 1558) and, in turn, inspiring the Taj Mahal completed in (1653) as historian Percy Brown had reckoned.

- Upon his death, Rahim was also buried in the same mausoleum.

- As in Humayun's Tomb project, 3D laser scanning was used to identify the cracks, which is a very effective tool.

- Also, on cleaning layers of soot and 20th century paint layers, the principal tomb chamber and five arched bays on each facade of the ground level arcade were found to be ornamented with breathtaking incised plaster patterns.

- Rahim had ornamented his wife's mausoleum with diverse motifs in plaster and stone.

- As with his poetry, these patterns include both geometric and floral patterns commonly seen in mausoleums, but also patterns seen in Hindu buildings, like 'swastik' and peacock.

- Each of the arches of the ground level arcade boast of medallions of varying designs in the spandrels of the arches.

- Where there was evidence of original design, the medallions were restored, carefully matching the quality of the 16th century craftsmen.

1.33 Lok Virasat, a festival of films on folk art and painting

- Films Division (FD) is organising LokVirasat, a festival of films on folk art and painting starting from November 27, 2020.

- An exclusive bouquet of documentary films on folk art and paintings - LokVirasat - is being showcased, between November 27–29, 2020 on FD website and You Tube channel.

- The Kingdom of God , on the great Indian heritage of art and culture with focus on various folk art traditions,

- Bhavai - Fading Memories, a film on Bhavai - a folk art of Gujarat,
- Naman – Khele, a film on the ancient folk art performed in Ratnagiri, Maharashtra,
- SahiJata, The Fusion Cult, a film on the unique fusion of muscle and music in the form of folk art on the back-drop of the ancient Orissa town of Puri and
- Therukoothu : Dancing For Life , a film depicting the age old Tamil folk art.

1.34 No rules notified for Citizenship Amendment Act, clarifies government

- The Central Government has notified that no rules under the Citizenship Amendment Act have been notified yet.
- It is being claimed across certain sections of social and digital media that the Central Government has notified rules for the Citizenship Amendment Act.
- Citizenship (Amendment) Act 2019 seeks to amend the definition of illegal immigrant for Hindu, Sikh, Parsi, Buddhist and Christian immigrants from Pakistan, Afghanistan and Bangladesh, who have lived in India without documentation.
- The law does not grant such eligibility to Muslims from those three countries, all of which are Muslim-majority countries. The act was the first time that religion had been overtly used as a criterion for citizenship under Indian law.

1.35 Health Minister seeks help of journalists in eradicating Tuberculosis by 2025

- Health Minister has sought the help of journalists in eradicating Tuberculosis by 2025.
- Addressing the students of Indian Institute of Mass Communication digitally, Health Minister said that the active participation of journalists will help in large scale awareness generation among public.
- A total of 1.4 million people died from TB in 2019 (including 208 000 people with HIV). Worldwide, TB is one of the top 10 causes of death and the leading cause from a single infectious agent (above HIV/AIDS).
- In 2019, an estimated 10 million people fell ill with tuberculosis(TB) worldwide. 5.6 million men, 3.2 million women and 1.2 million children. TB is present in all countries and age groups. But TB is curable and preventable.
- In 2019, 1.2 million children fell ill with TB globally. Child and adolescent TB is often overlooked by health providers and can be difficult to diagnose and treat.
- In 2019, the 30 high TB burden countries accounted for 87% of new TB cases. Eight countries account for two thirds of the total, with India leading the count, followed by Indonesia, China, the Philippines, Pakistan, Nigeria, Bangladesh and South Africa.

- Multidrug-resistant TB (MDR-TB) remains a public health crisis and a health security threat. A global total of 206 030 people with multidrug- or rifampicin-resistant TB (MDR/RR-TB) were detected and notified in 2019, a 10% increase from 186 883 in 2018.

- Globally, TB incidence is falling at about 2% per year and between 2015 and 2019 the cumulative reduction was 9%. This was less than half way to the End TB Strategy milestone of 20% reduction between 2015 and 2020.

- An estimated 60 million lives were saved through TB diagnosis and treatment between 2000 and 2019.

- Ending the TB epidemic by 2030 is among the health targets of the United Nations Sustainable Development Goals (SDGs).

1.36 Indian Navy refits Maldivian Coast Guard Ship CGS Huravee

- Visakhapatnam Naval Shipyard completed the modification of the Maldives Coast Guard MNDF CGS Huravee.

- The ship arrived in Visakhapatnam on February 22 for modification. Although it has been restricted due to the COVID19 pandemic since March 20, the Navy Shipyard's efforts, carefully planned and executed work, and sufficient Safety makes it possible for major refurbishment/replacement of main thrusters/auxiliary equipment.

- The update of the ship's power generation equipment provides an important guarantee for the durability and capability of ships. In addition, several sets of systems and equipment have been successfully overhauled to ensure that ships serving the Maldives Coast Guard have better performance and sustainability in the upcoming operating cycle.

- The ship has undergone extensive port and sea trials to achieve full operational preparation. In 2006, Huravee was presented to the Maldives by India to strengthen the partnership between the two countries and further cooperation to ensure maritime security in the Indian Ocean region.

- It was originally owned by INS Tillanchang, a locally built Trinkat-class patrol ship. The Ship was constructed in 2001 at Garden Reach Shipyard and Engineer's Office in Kolkata.

- MNDF CGS Huravee (formerly INS Tillanchang) is a locally produced Trinkat-class patrol ship built in 2001 at the Garden Reach shipyard and engineers in Kolkata.

- Subsequently, in 2006, the Indian government gifted it to the Maldives to strengthen the partnership between the two countries. And further cooperation to ensure maritime safety in the Indian Ocean region.

1.37 Agriculture Minister Narendra Singh Tomar launches Nafed's Honey FPO Programme

- Under the "Establishment and Promotion of 10,000 FPOs" Scheme, Honey FPO was established. An FPO, formed by a group of farm producers, is a registered body with producers as shareholders

in the organisation. It deals with business activities related to the farm produce and it works for the benefit of the member producers.

- The Union Agriculture Minister Narendra Singh Tomar (Narendra Singh Tomar) recently launched a cooperation program for beekeepers and honey collectors. The program was launched in 5 States.

- According to the plan, five farmer producer organizations will be established in five States. They will be established in East Chapalan in Bihar; Bharatpur in Rajasthan; Madhya Pradesh in Morena; Mathura in Uttar Pradesh; and Sundarbans in West Bengal.

- These organizations will be established by NAFED, the National Agricultural Cooperative Marketing Federation of India. These farmer producer organizations were initiated under the 10,000 FPO formation and promotion plan.

- The Honey FPO program of the National Agricultural Cooperative Marketing Federation of India Limited (NAFED) has been launched.

- The Honey FPO produced by the Indian Association of Agribusiness Professionals (ISAP) under the auspices of the National Bee Board (NBB) and NAFED will help its members in the following aspects:

- Improve their scientific beekeeping skills.

- Establish the most advanced infrastructure to process honey and related beekeeping products such as beeswax, propolis, royal jelly, bee venom, etc., as well as quality control laboratories, collection, storage, bottling and sales centres.

- NAFED, through its experienced cluster-based business organization (CBBO), ISAP, has launched the organization and promotion activities of beekeepers and honey collectors FPO in 5 states in India.

1.38 'PM Modi and his Government's Special Relationship with Sikhs' Book released on the occasion of Gurupurab

- Housing and Urban Affairs Minister released a Book titled Prime Minister NarendraModi and his Government's Special Relationship with Sikhs on the occasion of Gurupurab.

- The book, published by Ministry of Information and Broadcasting, was released in English, Hindi and Punjabi languages.

- The book is based on the messages of Guru Nanak Dev.

- The book is a compilation of many steps taken for welfare of Sikh community in India by the NarendraModi government.

- Guru Nanak, also referred to as Baba Nanak, was the founder of Sikhism and is the first of the ten Sikh Gurus.

- His birth is celebrated worldwide as Guru NanakGurpurab on KatakPooranmashi.

- Nanak is said to have travelled far and wide across Asia teaching people the message of ikonkar (one God), who dwells in every one of his creations and constitutes the eternal Truth.

- With this concept, he would set up a unique spiritual, social, and political platform based on equality, fraternal love, goodness, and virtue.

1.39 When is the Day of Remembrance for all Victims of Chemical Warfare observed?

- Every November 30th, the Remembrance Day for all victims of chemical warfare is commemorated to pay tribute to the victims of chemical warfare.

- The Remembrance Day for all victims of chemical warfare aims to eliminate the threat of chemical weapons, thereby promoting the goals of peace, security and multilateralism. The Organization for the Prohibition of Chemical Weapons announced this day.

- Since 2005, the United Nations has held a Remembrance Day on November 30 every year to commemorate all victims of chemical warfare.

- The anniversary is a tribute to the victims of chemical warfare and reaffirms the Organization for the Prohibition of Chemical Weapons (OPCW) to eliminate the threat of chemical weapons and thereby promote the goals of peace, security and multilateralism.

- The history of serious efforts to achieve chemical disarmament that reached the highest level by concluding the Chemical Weapons Convention began more than a century ago.

- During the First World War, the large-scale use of chemical weapons caused more than 100,000 lives and 1 million casualties.

1.40 PM inaugurates six-lane widening project of the Varanasi-Prayagraj section of NH-19

- Prime Minister NarendraModi inaugurated the opening ceremony of the NH-19 Varanasi-Prayagraj part of the six-lane expansion project in Varanasi.

- The newly widened and six-lane NH-19 has a total length of 73 kilometers and a total investment of Rs 24.47 billion, which is expected to reduce the travel time between Prayagraj and Varanasi by one hour.

- Dev Deepawali has become the "world-famous light and passion" festival in Varanasi, and is celebrated every Poornima in Kartik month.

- PM Modi will also attend 'Dev Deepawali', undertake a site visit of KashiVishwanath Temple Corridor Project and also visit the Sarnath Archaeological Site.

- The unprecedented work has been done on new highways, pull-flyovers, widening of roads to reduce traffic jams in and around Varanasi.

- The farmers would benefit greatly when modern connectivity expands in the area. Efforts have been made to create infrastructure like cold storage along with modern roads in the villages. To this end, a fund of 1 billion rupees was established.

- The Prime Minister also cited an example of how the farmers are benefiting from the government's efforts and modern infrastructure. He said black rice was introduced 2 years ago in Chandauli to increase the income of the farmers. Last year, a farmer committee was formed and around 400 farmers were given this rice to grow in the Kharif season.

- While normal rice sells for Rs 35-40 a kg, this black rice was sold for up to Rs 300 a kg. For the first time, this rice has been exported to Australia, that too at the rate of around Rs 800 per kg.

1.41 Dighawara-Bandikui of railway route between Ajmer to Delhi has been electrified

- The Minister of Railways unveiled the newly electrified Dhigawara-Bandikui section of the Northwest Railway Line and marked the first train from this electrified route from Dhigawara Station in Alwar District, Rajasthan.

- Indian Railways has set a goal to complete the electrification of its wide-gauge network by December 2023. More than 66% of the wide-gauge lines have been electrified.

- The electrification level of the railway is 18065 kilometres. Compared with 2009-2014, the electrification level increased by 371% in 2014-20.

- 100% electrification will eliminate train detention caused by the traction change (pull or pull the body on the surface) from diesel (electric) to diesel (or vice versa), thereby achieving seamless train operation.

- Due to the higher speed and higher traction capacity of electric locomotives, it will help railways increase line capacity.

- The improved signal system will increase the safety of train operation.

- Compared with diesel traction, electric traction is cheaper and more efficient, because electric traction trains are 50% cheaper than diesel.

- Electric multi-units (EMU) are ideal for suburban services, which require higher acceleration and braking functions to start and stop frequently.

- Direct employment in the electrification construction phase will be converted into about 20.4 million working days, which will greatly promote employment.

- A full shift to electric traction will reduce fossil fuel consumption by approximately 2.83 billion litres per year, and subsequently reduce greenhouse gas (GHG) emissions.

- Compared with diesel locomotives, electric locomotives have lower maintenance costs and can save Rs 13,510 crore in fuel costs each year.

- It reduces carbon footprint because the environmental cost per ton-kilometre of electric traction is lower than that of diesel traction.

1.42 **National Education Policy 2020 upholds reservation policy**

- The National Education Policy 2020 upholds the Reservation Policy enshrined in the Constitution of India.

- Reservation Policy in India is a process of reserving certain percentage of seats (maximum 50%) for a certain class such as Scheduled Castes, Scheduled Tribes, Backward classes, etc. in Government educational institutions, government jobs, etc.

- The reservation policy is an age-old policy being practiced in India.

- Its origin has its roots scattered from the ancient times when the practice of 'untouchability', caste system and Varna system was dominant in the society.

- Reservation enshrined in Articles 15 and 16 of the Indian Constitution, allows the Indian government to set quotas to ensure any "socially and educationally backward classes of citizens" is properly represented in public life.

- Reservation is primarily given to all 4 groups: Scheduled Castes, Scheduled Tribes, Other Backward Classes.

- Originally reservation was only given to SCs and STs but was later extended to OBCs in 1987 after the implementation of the Mandal Commission report.

1.43 **India records largest reductions in malaria cases in South-East Asia**

- The World Malaria Report, 2020 was released by the World Health Organisation.

- World Malaria Day is celebrated on April 25.

- As per the report, India recorded the largest reduction in malaria cases in South East Asia.

- The case count has reduced from 20 million in 2000 to around 5.6 million in 2019.

- The report also stated that the global malaria case count has remained unchanged for the past four years. In 2019, the number was around 229 million.

- According to the world Malaria report, 2020 prepared by the World Health Organisation, India was one among the 11 highest Malaria burden countries in the world.

- India is the largest contributor of Malaria cases in the south-east Asia region. Around 88% of Malaria cases in the region are from India.

- India has reduced the Malaria cases by 21% between 2018 and 2019.

- India has also reduced the malarial deaths in the past two years. In 2019, the number of deaths due to malaria in India was 409,000. It was 411,000 in 2018. This has made India one of the largest contributors to drop in malaria cases in the south-east Asia region.

- The highest Malaria burden countries were Cameron, Democratic Republic of Congo, Burkina Faso, Mozambique, Mali, Ghana, India, Nigeria and United Republic of Tanzania. These countries accounted to 70% of global estimated Malaria burden.

- African region accounted to more than 90% of overall malarial disease burden. However, since 2000 the number of Malaria deaths in the continent has reduced by 44%.
- The progress against malaria has not increased according to the WHO report.
- This is mainly due to the gaps in access to life saving tools and covid-19 pandemic. This is also due to shortfall in funding at both National and international levels.
- The malarial funding in 2019 reached 3 billion USD as against the target of 5.6 billion USD.

1.44 Prime Minister to virtually inaugurate Agra Metro Rail project on December 7

- Prime Minister Narendra Modi launched the construction work of Agra metro on **7th December**. Virtually Uttar Pradesh Metro Rail Corporation has set a deadline of five years for the completion of two corridors of Agra metro which will connect all the major tourist destinations and the tourists coming from all over the world to see the Taj will get a new experience of green transport.
- MD of UPMRC Kumar Keshav said that Agra Metro will be a boon to tourism and it will take around 3 years for the first metro train on the priority section between Tajmahal to Jama Masjid.
- He said that First time Heritage impact assessment was done with the help of IIT Madras and archaeological survey of India as per the guidelines of UNESCO before starting of work.
- Agra is also one of the most polluted cities of Uttar Pradesh and the Metro will definitely help in decreasing the pollution level of the city.

1.45 APEDA and NABARD sign MoU for agriculture development

- Agricultural and Processed Food Products Export Development Authority (APEDA) and National Bank for Agriculture and Rural Development (NABARD) have signed an MoU to work together to synergize the activities in the interest of agriculture and allied sectors for bringing better value to the stakeholders.
- The MoU has been signed by both organisations from the through the virtual-mode from their respective head offices. The MoU has been signed by APEDA's Secretary Dr Sudhanshu NABARD's Chief General Manager Nilay D Kapoor. APEDA's Chairman Dr M Angamuthu and NABARD's Chairman Dr GR Chintala graced the occasion and delivered an address highlighting
- The need and advantages of collaboration between APEDA and NABARD for implementation of Agri export policy.
- According to an official press release from the Ministry of Commerce & Industry, so far twenty cluster level committees have been formed in the cluster districts of potato in Punjab, UP (two separate districts), Isabgol in Rajasthan, Orange, Pomegranate, Grapes, Banana (3 districts) in Maharashtra, Banana in Tamil Nadu, Kerala, Mango in UP, Dairy products in Gujarat, UP, Rose onion in Karnataka, Fresh vegetables in UP, Orange in MP and Potato in Gujarat (2 districts). Two

rounds of meetings have been conducted in the clusters for sensitization of the stakeholders and discussion on the interventions required.

Areas of Cooperation

- APEDA and NABARD would jointly work towards capacity development of various stakeholders.

- APEDA and NABARD would jointly come towards organizing outreach programs, awareness programs and workshops for stakeholders.

- To enhance farmers income for doubling the farmers' income as set out by the Government of India.

- Extending the benefit of relevant schemes/other initiatives of NABARD &APEDA for development of FPOs.

- APEDA would formulate program in association with NABARD to provide technical know-how to cooperatives/FPOs to the upscale infrastructure created for post-harvest management for APEDA scheduled products to promote exports.

- To jointly identify clusters in various States for scaling up. APEDA will facilitate exports by the FPOs assisted/promoted by NABARD.

1.46 Vice President Venkaiah Naidu releases commemorative postage stamp in honour of Ex-PM IK Gujral

Vice President M Venkaiah Naidu on December 04 released commemorative postage stamp in honour of former Prime Minister I.K. Gujral on his birth anniversary. M Venkaiah Naidu said, "Shri IK Gujralwas a learned man, soft-spoken and a "gentleman-politician", who never compromised on his values irrespective of the challenges or hardships he had faced."He said that the present generation should know about great leaders, who made great contribution to the country.

1.47 Cabinet approves Atmanirbhar Bharat RojgarYojana

The Union Cabinet has given its approval for Atmanirbhar Bharat RojgarYojana (ABRY) to boost employment in the formal sector by encouraging the businesses to do fresh hiring amid the pandemic. ABRY will also incentivize the creation of new employment opportunities under Atmanirbhar Bharat Package 3.0. About the Yojana:

- The Cabinet has approved an expenditure of Rs 1,584 crores for the current financial year and Rs 22,810 crores for the entire scheme period from 2020 to 2023.

- The scheme will provide subsidy for two years in respect of new employees engaged on or after October 1, 2020, and up to June 30, 2021.

- The government will pay both 12 per cent employees' contribution and 12 per cent employers' contribution i.e. 24 per cent of wages towards EPF in respect of new employees in establishments employing up to 1,000 employees for two years.

- It will pay only employees' share of EPF contribution i.e. 12 per cent of wages in respect of new employees in establishments employing more than 1,000 employees for two years.

1.48 Eligibility

- An employee drawing monthly wage of less than Rs 15,000 who was not working in any establishment registered with the Employees' Provident Fund Organisation (EPFO) before October 1, 2020, and did not have a Universal Account Number (UAN) or EPF Member account number prior to October 1, 2020, will be eligible for the benefit

- Any EPF member possessing Universal Account Number (UAN) drawing monthly wage of less than Rs 15,000 who made exit from employment during COVID pandemic from March 1, 2020, to September 30, 2020, and did not join employment in any EPF covered establishment up to September 30, 2020 will also be eligible to avail benefit.

1.49 Inner-Line Permit

Meghalaya's civil society groups have renewed calls for British-era **Inner Line Permit.**

Why Meghalaya wants ILP?

Fear among the indigenous people of Northeast against an "illegal immigrant influx", its effects and long-term damages. **Northeast India shares borders with countries** such as China, Myanmar, Bangladesh and Bhutan.

What is an ILP?

It is a document required by non- natives to visit or stay in a state that is protected under the ILP system.

At present, four Northeastern states are covered, namely, **Arunachal Pradesh, Mizoram, Manipur and Nagaland.**

1. Both the duration of stay and the areas allowed to be accessed for any non native are determined by the ILP.

2. The ILP is issued by the concerned State government and can be availed both by applying online or in person.

An ILP is **only valid for domestic tourists.**

Rationale behind:

The Inner Line Permit is an extension of **the Bengal Eastern Frontier Regulation Act 1873.**

After the British occupied the Northeast, the colonisers started exploiting the region and its resources for economic benefits.

1. They first started tea plantations and oil industries in Brahmaputra Valley.

2. The indigenous tribes living in the hill areas would regularly conduct raids into the plains to loot and plunder, marauding the tea gardens, oil rigs and trading posts set up by the British East India Company.

3. It was in this context that the BEFR 1873 was promulgated.

Should Meghalaya be brought under ILP?

The **ILP is considered the only mechanism to contain influx in the State.** Influx is perceived as dangerous because it could upset the fragile demographic balance of the tribals of Meghalaya.

Influx definitely is a matter of concern but it requires better solutions than the ILP, not instant solutions demanded by pressure groups.

1.50 Two child policy

The latest data from the National Family Health Survey-5 (NFHS-5) shows India doesn't need a two-child policy: experts.

Why?

1. The use of modern contraceptives in rural and urban areas.

2. An improvement in family planning demands being met.

3. A decline in the average number of children borne by a woman.

These prove that the country's population is stabilising.

Key points:

1. The Total Fertility Rate (number of children born per woman) has decreased across 14 out of 17 States and is either at 2.1 children per woman or less.

2. This also implies that most States have attained replacement level fertility, i.e., the average number of children born per woman at which a population exactly replaces itself from one generation to the next.

Criticisms related to two- child policy:

1. Critics argue that **the population growth of India will slow down naturally** as the country grows richer and becomes more educated.

2. There are **already well-documented problems with China's one-child policy,** namely the gender imbalance resulting from a strong preference for boys and millions of undocumented children who were born to parents that already had their one child.

3. By interfering with the birth rate, **India faces a future with severe negative population growth,** a serious problem that most developed countries are trying to reverse. With negative population growth, the number of old people receiving social services is larger than the young tax base that is paying for the social services.

4. The law related may also be **anti-women.** Human rights activists argue that the law discriminate against women right from birth (through abortion or infanticide of female fetuses and babies).

5. A legal restriction to two children could force couples to go for **sex-selective abortions** as there are only two 'attempts

2. INTERNATIONAL RELATIONS

2.1 INDIA-VIETNAM LEADERS' VIRTUAL SUMMIT

Prime Minister Narendra Modi held a Virtual Summit with H.E. Nguyen XuanPhuc, Prime Minister of Vietnam.

About:

- A 'Joint Vision for Peace, Prosperity and People' document was adopted during the Summit, to guide the future development of the India-Vietnam Comprehensive Strategic Partnership.

- Both leaders also welcomed the signing of a Plan of Action for period 2021-2023 for further implementation of Comprehensive Strategic Partnership to implement the Joint Vision.

Announcements made:

- Implementation of the High Speed Guard Boat (HSGB) Manufacturing Project for Vietnam Border Guard Command under the US$ 100 million Defence Line of Credit extended by Government of India to Vietnam;

- Completion and handing over of seven Development Projects with Indian 'Grant-in-Aid' Assistance of US$ 1.5 million for the benefit of local community in Vietnam's NinhThuan province.

- Enhancing the number of annual Quick Impact Projects (QIPs) from currently five to ten commencing FY 2021-2022.

- Three new Development Partnership projects in heritage conservation in Vietnam (F-block of Temple at My Son; Dong Duong Buddhist Monastery in Quang Nam province; and Nhan Cham Tower in Phu Yen province).

- Launch of bilateral project for preparing an Encyclopaedia on India - Vietnam Civilizational and Cultural Relations.

2.2 FORDOW FUEL ENRICHMENT PLANT (FFEP)

According to satellite images, Iran has begun construction on a site at its underground nuclear facility at Fordow amid tensions with the U.S. over its atomic programme.

Highlights:

- Fordow Fuel Enrichment Plant (FFEP) is an Iranian underground uranium enrichment facility located 20 miles northeast of the Iranian city of Qom, near Fordow village.
- It is the second Iranian uranium enrichment facility, the other one being that of Natanz.
- Iran has not publicly acknowledged any new construction at Fordow, whose discovery by the West in 2009 came in an earlier round of brinkmanship before world powers struck the 2015 nuclear deal with Tehran.
- While the purpose of the building remains unclear, any work at Fordow will likely trigger new concern in the waning days of the Trump administration before the inauguration of U.S. President-elect Joe Biden.

2.3 INDIA-BANGLADESH VIRTUAL SUMMIT

NarendraModi, Prime Minister of India and Sheikh Hasina, Prime Minister of Bangladesh held a Summit in virtual format on 17 December 2020.

About:

- The two sides jointly inaugurated the Bangabandhu-Bapu Digital Exhibition.

- The two sides jointly inaugurated a railway link between Haldibari in India and Chilahati in Bangladesh during the summit. Haldibari - Chilahati route will be beneficial for transit into Bangladesh from Assam and West Bengal.

- Both sides also agreed to hold an early meeting of the Joint Boundary Conference to prepare a new set of strip maps along the stretch of Icchamati, Kalindi, Raimongol and the Hariabhanga Rivers.

- Bangladesh requested India to name the historic road from Mujib Nagar to Nodia on Bangladesh-India border as "Shadhinota Shorok" commemorating the historic significance of the road during Bangladesh's Liberation War.

- The following bilateral development partnership projects were also inaugurated:
  Beautification and city development project in Rajshahi City;
  Construction of Khalishpur Collegiate Girl's School in Khulna.

List of MoUs/Agreements signed during the Summit:

- Framework of Understanding on Cooperation in the Hydrocarbon Sector

- MoU regarding Indian Grant Assistance for Implementation of High Impact Community Development Projects through Local Bodies and other Public Sector Institutions

- Protocol on Transboundary Elephant Conservation

- MoU for Supply of Equipment & Improvement of Garbage/Solid Waste Disposal Ground at Lamchori Area for Barishal City Corporation

- MoU on Cooperation in the field of Agriculture

- MoU between Father of the Nation Bangabandhu Sheikh MujiburRahman Memorial Museum, Dhaka, Bangladesh and the National Museum, New Delhi, India.

2.4 Israeli government collapses, elections likely to be held in March 2021

1. The Israeli government collapsed on December 22, 2020 after the nation's Parliament failed to meet a deadline for passage of budgets. The nation is now headed towards its fourth elections in two years. Israel will have elections probably in March 2021.

2. Israeli Prime Minister Benjamin Netanyahu and his coalition partner and leader of Blue and White party Benny Gantz blamed each other for the collapse of their seven-month-old government

3. Netanyahu blamed the Blue and White party saying that it withdrew from the agreements to modify the original coalition agreement and dragged them to unnecessary elections during the corona crisis. The Prime Minister continued by saying that they do not want an election and had voted against it but they are not afraid of elections as they will win.

4. Gantz while referring to the corruption charges facing Netanyahu claimed that the Prime Minister is preoccupied with his trial and not the public interest and is prepared to drag the entire country into a period of uncertainty instead of ensuring rehabilitation of the economy and ensuring economic stability.

5. After three inconclusive elections, Benny Gantz had agreed to join Benjamin Netanyahu to form an 'emergency coalition government' in April 2020.

6. Under the deal reached between the two leaders, the post of the Prime Minister would have been rotated between the two-party leaders with Netanyahu serving first, giving way to Benny Gantz after 18 months.

7. The deal comprised a loophole that if the lawmakers failed to agree to a budget before the deadline of midnight on December 22 then the government will collapse.

8. The national legislature of Israel, Knesset failed to pass the bill at first reading in the early hours of December 22, 2020 leading to the collapse of the government.

2.5 Singapore's street food added to UNESCO heritage list

- Singapore's street food has been added to the UNESCO list of Intangible Cultural Heritage of Humanity. The nation's hawker culture will now join the likes of Yoga and Tango from India and Argentina respectively.

- The award was conferred at a virtual ceremony on December 16, 2020. Hawker culture refers to the community of vendors who cook and sell meals at the 114 hawker centres across the nation.

- The award will provide invaluable protection to the vendors after a tough year due to the COVID-19 pandemic.

Significance

- Singapore's street food corners are considered as the nation's dining rooms, where people from all walks of life mingle and eat freshly cooked dishes at very affordable prices from morning till the night.

- The renowned American chef, Anthony Bourdain during his visit to Singapore in 2017 had stated that the hawker centers are wonderlands of Chinese, Indian, and Malay specialties. The late chef and travel documentarian's praise had added to the increasing respect that Singapore's hawker food had gained internationally.

Key Highlights

- From whole roasted ducks, steamed pork buns to fish head curry, the hawkers in Singapore sell all kinds of delicacies.

- The hawkers there often specialize in a particular dish, which has been refined over many many years and then transmit their knowledge, recipe and skills to the younger family members.

- In 2019, 58 eateries in Singapore had made it to the Michelin Bib Gourmand list, out of which 33 were hawker stalls.

- Several of the hawker stalls even have Michelin stars, which makes Singapore home to some of the cheapest Michelin-starred food in the world.

- The first hawker to receive a Michelin star was Liao Fan Hawker Chan in the Chinatown Complex Market, in 2016.

Impact of COVID-19

- The hawker culture in Singapore has faced several issues and challenges in recent years despite the accolades and praise, as most of the hawkers are aging and very few young Singaporeans are keen to adopt the profession.

- Further, the cost of raw ingredients has been increasing but the average dish price has been kept low so that people from all income backgrounds can afford it. This means that the profit margins are small.

- The COVID-19 pandemic worsened the situation as all dining at hawker centres was halted in the wake of the outbreak to cut of the transmission chain. Though takeaways were permitted, few hawkers ceased trading because they were losing money by staying open and business was bad for those who continued.

2.6 <u>UK's new mutated coronavirus strain highly infectious: UK PM orders lockdown.</u>

A new **mutated variant Covid-19 strain was discovered in the United Kingdom** last week. The UK Secretary of State for Health and Social Care Matt Hancock announced on December 21, 2020 that a new strain of the disease has been discovered in the nation, which has reportedly infected roughly 1000 individuals in Southern England.

The announcement came after the Chief Medical Officer for England, Chris Whitty called on the nation on December 19, 2020 to remain vigilant as a recently discovered variant of the coronavirus was spreading rapidly. Scientists and researchers have stated the new strain of coronavirus can be transmitted much faster than the earlier variant.

India suspends flights from UK

- The Indian Government has suspended all flights originating from the United Kingdom to India till December 31, 2020. The suspension will be brought into effect from 11.59 pm on December 22nd, announced Union Ministry of Civil Aviation.

- The passengers arriving from UK in all transit flights that have taken off or are reaching India before December 22nd will be subjected to mandatory RT-PCR test on arrival at airports, as a measure of abundant precaution, said the Civil Aviation Ministry.

- As a measure of abundant precaution, passengers arriving from UK in all transit flights (flights that have taken off or flights which are reaching India before 22nd Dec at 11.59 pm) should be subject to mandatory RT-PCR test on arrival at airports.

UK PM announces tier-4 COVID-19 rules

- The UK Prime Minister Boris Johnson announced new tier-4 COVID-19 restrictions in the UK on December 19, 2020, just a few days before Christmas. The new rules have been imposed in most affected areas of England including London, Southeast and East of England, which are currently in Tier 3, due to the rapid spread of the new variant of the virus.

- These areas will now fall under new tier 4 restrictions, which will broadly be equal to national restrictions or lockdown, which was imposed in England in November. The tier 4 restrictions mandate the residents to stay at home apart from limited exceptions and work from home if they can.

- Further, people living in tier 4 will be allowed to meet only one person from another household in outdoor public space. UK Prime Minister further announced that Christmas cannot be continued as planned.

> ### Italy detects one case of UK's new mutated Covid-19 strain
>
> - Italy announced on December 20, 2020 that it has detected a new strain of coronavirus that has mutations in a person who recently returned from the United Kingdom.
> - The announcement came after the UK imposed a lockdown in certain parts of the nation including London admitting that more than half of all new cases in the country were being caused by a more infectious mutated variant of the coronavirus.
> - The infected patient is now being observed in Italy together with family and close contacts, as per the procedures prescribed by the Italian health authorities.

Why is UK's new mutated coronavirus variant more infectious:

The newly discovered mutated variant of coronavirus is reportedly spreading faster, almost 70 percent more infectious compared to the earlier variant because it is showing almost 17 changes in the genome, which has resulted in a change in the virus transmission as well. As per experts, the new variant of the infection could be the reason behind the sharp rise in cases in the country.

2.7 Nepal Parliament dissolves, President announces dates for polls in 2021

- Hours after the recommendation made by the Nepal Prime Minister KP Sharma Oli to dissolve the Parliament on December 20, 2020, the proposal was ratified by President Bidhya Devi Bhandari who also announced the dates for the elections to be held in 2021.

- According to the press release by the President's office, Nepal President has ratified the proposal of Parliament dissolution which was presented by Prime Minister KP Sharma Oli.

- Upon the recommendation made by the Council of Ministers, President has also announced the dates for the polls which will be held in two phases, on April 30, 2021, and May 10, 2021.

- The move came after Prime Minister summoned an emergency meeting of the council of ministers after he had a series of meeting with the party's ministers and leadership on December 19.

Rift inside the ruling party leads to Parliament dissolution:

- The step of dissolving the Parliament by the Prime Minister has come amid the rising rift inside the ruling party (NCP) as well as the house being adjourned for the longest time in the country's history. PM Oli was under pressure to withdraw an ordinance which was related to the Constitutional Council Act, which also got endorsed by the President of Nepal.

- The Prime Minister of the country was facing pressure from the rival factions of the Nepal Communist Party (NCP) led by the former Prime Ministers Madhav Nepal and Pushpa Kamal Dahal.

- However, since the Constitution of Nepal does not have a provision for the Parliament dissolution, the move is likely to be challenged by the rivals in the court.

- The move to dissolve the Parliament will see strong opposition from Madhav Nepal and Prachanda Camp. They are likely to protest as well as can file a writ in the Supreme Court challenging the position that has been taken by PM KP Sharma Oli.

- In usual circumstances, the President is consulted by Prime Minister in advance on these and accordingly, the Parliament is dissolved only once it is approved by the President.

Spokesperson of NCP calls the move undemocratic:

- While reacting after the confirmation of the decision, the spokesperson of the ruling Nepal Communist Party, Narayankaji Shrestha, called the move undemocratic.
- He added that the decision to dissolve the Parliament has been made in a hurry as all the ministers were not present in the cabinet meeting. He strongly emphasized that the move is against the democratic norms and will take the nation backward.

2.8 US FDA plans to give authorisation to Moderna for emergency use

- The United States Food and Drug Administration's advisors have voted in favour of recommending that the agency must give emergency use authorization to the COVID vaccine of Moderna. The FDA officials have stated that they plan on moving ahead with the authorisation.
- Earlier on November 30, 2020, Moderna had informed that it has submitted the results of COVID-19 vaccine trials to the Food and Drug Administration (FDA) to obtain the emergency use authorization for the vaccine.
- Moderna mentioned the submission of data for the emergency use authorization for mRNA-1273 to the US FDA. It further added that its COVID vaccine efficacy was 94.1 percent and had reached 100% in severe cases. The firm assured that the vaccine is well tolerated and devoid of serious safety concerns.

US FDA plans to give permission to Moderna:

- Dr. Stephen Hahn, FDA Commissioner and the Director of FDA's Centre for Biologics Evaluation and Research, Dr. Peter Marks informed through a statement that following the positive outcome of the advisory committee meeting regarding the Corona vaccine of Moderna, the US FDA has informed the sponsor that it will be working rapidly towards the issuance and finalization of an emergency use authorisation.

- The statement further added that the agency has also notified the operation Warp Speed and the Centres for Disease Control and Prevention so that they can timely execute their plans for the vaccine distribution.

Similarity with Pfizer vaccine:

The Vaccines and Related Biological Products Advisory Committee had voted 20-0 with one absentation for recommending EUA for the Moderna Vaccine, which is also very similar in composition, design, safety, and efficacy to Pfizer vaccine. As per one committee member, it looks like the benefits of the vaccine have outweigh the risks.

Moderna's request for Emergency Use Authorisation:

- Moderna, the US Biotech company in a recent announcement informed that it has submitted the results of trials and plans on requesting an emergency use authorisation from the US FDA. It will also request conditional approval from the European Medicines Agency- EMA, after the final results of the late-stage study have indicated that its COVID vaccine candidate is 94.1% effective.

- We just announced the primary efficacy analysis in the Phase 3 COVE study for mRNA-1273, our COVID-19 vaccine candidate and that today, we plan to request an Emergency Use Authorization from the U.S. FDA & conditional approval from the EMA.

- As per the statement by the company, the primary efficacy analysis of mRNA-1273 phase 3 study which was conducted on 196 cases has confirmed the high-efficacy observed at the first interim analysis.

2.9 India, Iran and Uzbekistan to hold talks today on joint use of Chabahar port

- India, Iran and Uzbekistan will hold the First Trilateral Working Group Meeting today on the joint use of the strategically located Chabahar port. The announcement regarding the meeting was made by the Ministry of External Affairs (MEA).

- The Meeting will be jointly chaired at Secretary Level by India and at Deputy Minister level by Iran and Uzbekistan.
- India welcomed Uzbekistan's interest to use Chabahar port as a transit port.
- The move will open up economic opportunities for traders and business community of the region.
- Other Central Asian countries have also reportedly shown interest in using the port.
- India aims to cooperate closely with regional countries on the issue.

Chabahar port

- The Chabahar port is being developed by India, Iran and Afghanistan to boost trade ties between the three nations bypassing Pakistan.
- The port is situated on the energy-rich southern coast of Iran's Sistan-Balochistan province and can be easily accessed from India's western coast.
- The port is being considered as one of the major transit points to connect with several Central Asian countries.

Background

- Indian Prime Minister NarendraModi during his virtual summit with Uzbekistan's President ShavkatMirziyoyev had discussed ways to speed up connectivity projects linking Central Asia.
- India has invited Uzbekistan to participate in the International North South Transport Corridor (INSTC) project. The project is a 7,200-km-long multi-mode transport project, which will enable freight movement between India, Iran, Afghanistan, Azerbaijan, Armenia, Russia, Central Asia and Europe.

2.10UNESCO to launch international prize in the name of Bangabandhu Sheikh MujiburRahman

The United Nations Educational, Scientific and Cultural Organisation has decided to launch the 'UNESCO-Bangladesh Bangabandhu Sheikh MujiburRahman International prize'. The prize will be launched in the field of 'creative economy' starting from November 2021.

- As per UNESCO, the prize will be creating a knowledge-sharing mechanism by celebrating, capturing, and communicating the best practice in the development of creative entrepreneurship.
- The international prize by the UN agency will be 50 thousand dollars and will be given once every two years for the global economic initiatives of the youth.
- UNESCO has also declared 2021 as an 'International Year of Creative Economy for Sustainable Development'. Presently, there is a total of 23 UNESCO international awards in the name of international organisations and celebrities.

International prize in name of Bangabandhu:

- According to the Ministry of Foreign Affairs of Bangladesh, the award will be recognising the exceptional initiatives that have been taken by organisations and cultural workers in the development of the creative economy.
- The prize will also be creating an opportunity to spread the ideology of Bangabandhu Sheikh MujiburRahman in the world and will inspire the cultural workers to develop the creative economy.

What is a Creative Economy?:

- It refers to an economic activity that depends on the individual's creativity for its economic value whether the result has in it any form of cultural value or not. This form of the economy only occurs wherever the person's creativity is the major source of value as well as the main cause of a transaction.

Bangabandhu Sheikh MujiburRahman:

- He was a Bangladesh politician and statesman and is also called the 'Father of the Nation' in Bangladesh. Mujibur Rahman served as the first President of Bangladesh and then later as the Prime Minister of the Country from April 17, 1971, until his assassination on August 15, 1975.
- Rahman became a leading figure and eventually a leader of the Awami League which was founded in 1949. It was an East-Pakistan-based political party founded in Pakistan. He is credited as a significant figure for gaining political autonomy for East Pakistan. Mujib later became a central figure behind the Bangladesh Liberation Movement and War in 1971. Thus he is regarded as the 'Father of the Nation' in Bangladesh.

2.11 Climate Ambition Summit: India to exceed Paris Agreement targets, says PM Narendra Modi
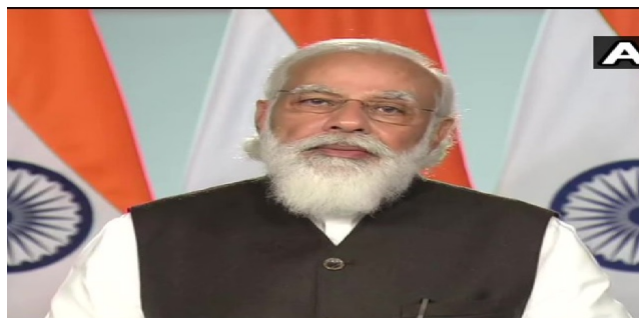
- PM Modi on December 12, 2020, addressed the Climate Ambition Summit 2020 and mentioned that India is not only on track to achieve its Paris Agreement targets but is to exceed them beyond expectations.

- He also informed that India has reduced its carbon emission intensity by 21% over 2005 levels.

- The summit was co-hosted by United Nations, France, and the United Kingdom to mark the 5th anniversary of the Paris Agreement. The participant nations focused on the actions that are aimed to tackle the climate change issue.

- India is not only on track to achieve its Paris Agreement targets but to exceed them beyond expectations: PM Narendra Modi at the Climate Ambition Summit 2020.

- The summit also saw the address of the General-Secretary of the United Nations, Antonio Guterres who urged the leaders of the countries to take essential steps while highlighting the need of saving the planet Earth for the future generation.

India increases its renewable energy and solar capacity:

- Prime Minister in his address highlighted that India's renewable energy capacity is the 4th largest in the world and it will reach 175 GigaWatts in 2022. He also informed that the country has an even more ambitious target of achieving 450 GigaWatts of renewable energy capacity by the year 2030.

- While talking about solar capacity, PM Modi noted that India's solar capacity has grown from 2.63 Gigawatts to 36 Gigawatts in 2020.

Two major initiatives by India on the world stage to safeguard the environment:

- Prime Minister Modi in his address highlighted that India has safeguarding its biodiversity and expanding its forest cover. While on the world stage, it has pioneered two major initiatives 'Coalition for Disaster Resilient Infrastructure and International Solar Alliance'. He added that India will be celebrating 100 years as an independent modern nation in 2047.

- Today as we are looking to set our sight even higher, we must also not lose sight of the past. We must not only revise our ambitions but also review our achievements against targets already set.

- While focusing to set the world's sight higher, PM Modi emphasized that we must not lose sight of the past. The countries must revise the ambitions but also review the achievements against the targets that are already set only then our voices will be credible for the future generations.

UN Chief urges leaders to declare a state of climate emergency:

- The United Nations General-Secretary Antonio Guterres while addressing the Climate Ambition Summit 2020 called on the leaders of the member nations to declare a 'state of climate emergency' until they are able to achieve carbon neutrality. He also talked about the essential steps that must be taken to save the Earth for future generations.

- I call on leaders worldwide to declare a State of Climate Emergency in their countries until carbon neutrality is reached.

- Five years after the Paris Agreement, we are still not going in the right direction. Let's make the promise of a net zero world a reality.

About Paris Agreement:

- It is an international treaty on climate change that was adopted on December 12, 2015, by 196 parties at COP21 in Paris and entered into force on November 4, 2016.

- Paris agreement was designed to keep the rise in global temperatures less than 2 degrees Celsius above pre-industrial levels. Countries, which signed the agreement, pledged of reducing greenhouse gas emissions for achieving carbon neutrality by mid-century. Carbon neutrality is a balance between the volume of carbon dioxide emissions and carbon dioxide absorption by forests, oceans, and soil.

2.12 <u>Israel-Morocco peace deal</u>

- Morocco has become the latest Arab nation to normalise relations with Israel under a deal brokered with the help of the United States.

- US President Donald Trump announced the agreement through a post on Twitter. He tweeted saying, "**Another HISTORIC breakthrough today!** Our two GREAT friends Israel and the Kingdom of Morocco have agreed to full diplomatic relations - a massive breakthrough for peace in the Middle East!

- Another HISTORIC breakthrough today! Our two GREAT friends Israel and the Kingdom of Morocco have agreed to full diplomatic relations – a massive breakthrough for peace in the Middle East!

- As a part of the deal, in return, the United States has agreed to recognise Morocco's claim over the disputed Western Sahara Region, which is a subject of dispute between the nation and the Algeria-backed Polisario Front, which seeks to establish an independent state in the region.

- Morocco recognized the United States in 1777. It is thus fitting we recognize their sovereignty over the Western Sahara.

- This makes Morocco the **fourth Arab nation to strike a peace deal with Israel** this year, after the United Arab Emirates, Bahrain and Sudan. Overall, Morocco is the sixth nation to recognise Israel, the first were Egypt and Jordan.

Israel-Morocco Peace Deal: Key Highlights

- The Israel-Morocco Peace deal will including the reopening of liaison offices in Tel Aviv and Rabat. The offices were shut down in 2000 after the Palestinian uprising.

- The deal will eventually lead to the opening up of embassies of the two nations in each other's capital cities.

- As per officials, Morocco will also allow direct flights to and from Israel for all Israelis.

- Israeli Prime Minister Benjamin Netanyahu in a televised address called the agreement 'historic' and thanked Morocco's king and said that the people of the two countries share a warm relationship in the modern period.

- UAE, Egypt and Bahrain issued statements welcoming the Israel-Morocco Peace deal.

Palestine's Reaction & Morocco's statement on the Palestinian cause

- Palestinian officials condemned the agreement, saying it would encourage Israel's denial of their rights. They had also condemned the earlier agreements of the Arab states with Israel, calling it a betrayal on their part to the Palestinian cause.

- In an official statement, Morocco's King agreed to the peace deal with Israel with minimal delay. However, the royal statement clarified that these measures to normalise relations with Israel do not in any manner affect Morocco's ongoing and sustained commitment to the just Palestinian cause.

- The statement added that the King had spoken with Palestinian Authority President Mahmoud Abbas and assured him that he would not leave his position on defending the legitimate rights of the Palestinian people. The **King reiterated his support for a two-state solution** to the **Israeli-Palestinian conflict.**

Western Sahara Dispute: What is it all about?
As a part of the **Israel-Morocco Peace deal,** the United States agreed to recognise Morocco's claim over Western Sahara. US President Donald Trump reaffirmed his support for Morocco's serious, credible, and realistic autonomy proposal as the only basis for a just and lasting solution to the dispute over the Western Sahara territory. Trump recognised Moroccan sovereignty over the entire Western Sahara territory, as per a statement by the White House.

What is the Western Sahara Dispute?

- Western Sahara, a former Spanish colony, was claimed by Morocco in 1975. Since then it has been a matter of territorial dispute between Morocco and its indigenous Saharawi people, led by the pro-independence Polisario Front, which seeks to establish an independent state in the region.

- While Morocco claims the territory to have always been a part of its region, the African Union recognises it as an independent state.

- The 16-year-long insurgency over the territory ended with an UN-brokered truce in 1991. A promise of an independence referendum was also made but it is yet to take place.

- As per the official US statement, an independent Sahrawi State is not a realistic option for resolving the dispute and Morocco's genuine autonomy over the region is the only feasible solution.

- The United States will now open its consulate in Western Sahara as part of the Israel-Morocco deal.

Polisario Front's Reaction

Polisario Front's representative to the UN, Sidi Omar said Western Sahara's legal status is determined by international law and UN resolutions. The group's Europe representative, OubiBchraya, said that the change in **US policy will not change an inch of the reality of the conflict** and the right of the people of Western Sahara to self-determination.

2.13 China activates nuclear-powered Artificial Sun
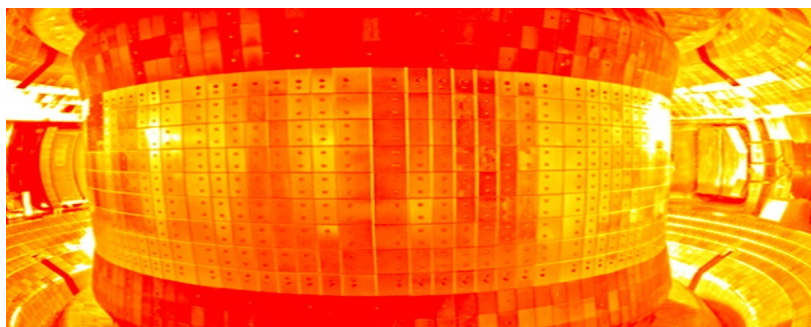
- China successfully activated its nuclear-powered 'Artificial Sun'-HL-2M Tokamak reactor- for the first time on December 4, 2020. The fusion reactor was switched for a brief test.

- The successful activation of the nuclear fusion reactor is being hailed as a significant scientific achievement, as it comes at a time when countries across the world are attempting to shift to safer, cleaner forms of nuclear energy.

- The reactor is expected to fuel China's energy ambitions for years to come if it is made more sustainable.
- The nuclear-powered artificial sun will not help solve China's strategic energy needs, but it also has great significance for the future sustainable development of China's energy and national economy.

About China's Artificial Sun:

- China's artificial sun is a nuclear fusion reactor called HL-2M Tokamak reactor. It is called an "artificial Sun" because of the enormous heat and power it produces.
- The nuclear fusion reactor is China's largest and most advanced nuclear fusion experimental research device.
- Scientists aim to unlock a powerful clean energy source by using the device.
- The reactor generates power by applying powerful magnetic fields to a contained loop of hot plasma, which can reach temperatures of more than 150 million C, which is almost 10 times hotter than the core of the sun.
- The magnets and supercooling technology will keep the reactor contained.
- China has developed the nuclear reactor by working alongside the International Thermonuclear Experimental Reactor (ITER) project, which is a coalition of dozens of nuclear-powered nations.
- The main aim of the coalition is to develop a reliable form of nuclear fusion based on the same concept.

What is Fusion?

Fusion is considered the **'Holy Grail' of energy**, which also powers our Sun. Fusion g**enerates power by merging nuclei of atoms.** The process emits no greenhouse gases and carries less risk of accidents or the theft of atomic material. However, it is a coveted and elusive form of nuclear technology that scientists have been trying to perfect for decades, as achieving fusion is both extremely difficult and prohibitively expensive.

Difference between Fusion and Fission	
Fusion	**Fission**
The fusion process brings together atomic nuclei to create massive amounts of energy.	The fission process, which is used in nuclear and atomic weapons and nuclear power plants, splits atomic nuclei into fragments.
It does not generate large amounts of nuclear waste.	It generates nuclear waste.
It is harder to achieve.	It is easier to achieve.

Background

- China's nuclear-powered artificial sun is located in southwestern Sichuan province. It was completed late in 2019. Chinese scientists have been working to develop smaller versions of the nuclear fusion reactor since 2006.

- The International Thermonuclear Experimental Reactor scientists are also working on their own nuclear fusion research project based in France. The project, which will be the world's largest, is expected to be completed by 2025.

2.14   OPEC +

Russia expects to support an increase in oil production by OPEC+, of another 500,000 barrels per day (bpd) from February at next month's summit of the leading global oil producers.

What is OPEC+?

- The non-OPEC countries which export crude oil along with the 14 OPECs are termed as OPEC plus countries.

- OPEC plus countries include Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan and Sudan.

- Saudi and Russia, both have been at the heart of a three-year alliance of oil producers known as OPEC Plus — which now includes 11 OPEC members and 10 non-OPEC nations — that aims to shore up oil prices with production cuts.

How OPEC+ came into existence?

- When Russia concluded the Vienna Agreement in 2016, the Russian leadership believed that it would help prepare the country for the Russian presidential elections in March 2018.

- Higher oil prices ensured the Kremlin's financial capacity to lead a successful electoral campaign.

- This changed the regime's priorities – from satisfying the needs of the general population to ensuring the sustainability of the Kremlin's alliance with powerful tycoons, including that controlling oil production.

- For Saudi Arabia, turning what had been an ad hoc coalition into a formal group provides a hedge (protection) against future oil-market turbulence.

- For Russia, the formalization of the group helps expand Putin's influence in the Middle East

- However, both reportedly aimed at causing a drop in oil prices in order to hit US shale producers, who have continued to benefit from OPEC production cuts by expanding their market share.

OPEC

- The Organization of the Petroleum Exporting Countries (OPEC) is a **permanent, intergovernmental organization,** created at the **Baghdad Conference** in **1960,** by Iran, **Iraq, Kuwait, Saudi Arabia, and Venezuela.**

- It aims **to manage the supply of oil in an effort to set the price of oil in the world market,** in order to avoid fluctuations that might affect the economies of both producing and purchasing countries.

- It is headquartered **in Vienna, Austria.**

- OPEC **membership** is **open to any country** that is a **substantial exporter of oil** and which shares the **ideals of the organization.**

- Gabon terminated its membership in January 1995. However, it rejoined the Organization in July 2016.

- As of 2019, OPEC has a total of 14 Member Countries viz. Iran, Iraq, Kuwait, United Arab Emirates(UAE), Saudi Arabia, Algeria, Libya, Nigeria, Gabon, Equatorial Guinea, Republic of Congo, Angola, Ecuador and Venezuela are members of OPEC.

3. INDIAN ECONOMY

3.1 India ranks 131 in UN's Human Development Index

The Human Development Index has been topped by Norway, followed by Ireland, Switzerland, Hongkong, and Iceland.

- According to the report released by UNDP- United Nations Development Programme, India has been ranked at 131 among 189 countries in Human Development Index 2020. The index is a measure of a nation's health, standards of living, and education.

- The 2020 Human Index Report states that the life expectancy of Indian citizens at birth in 2019 was 69.7 years, while the life expectancy of Bangladeshi citizens was 72.6 years and Pakistan has 67.3 years.

- Apart from India, Bhutan has been ranked at 129, Bangladesh is at 133, Nepal is ranked 142, and Pakistan at 154 among the countries with medium human development.

- The Human Development Index has been topped by Norway, followed by Ireland, Switzerland, Hongkong, and Iceland.

- India ranks 131 in the United Nations Development Programme's (UNDP)) Human Development Index.

India is in the medium human development category:

- The Human Development Index value of India for 2019 was 0.645 which put the country in the medium human development category. India has ranked 131 out of 189 countries while it ranked 130 in 2018 in the development index.

- Shoko Noda, the UNDP Resident Representative, stated that the drop in India's ranking from 130 to 131 doesn't mean that India didn't do well, it means that other countries did better. He added that India can also help other countries too and appreciated its commitment to reduce carbon emissions.

What does the report say about India's low rank in HDI:

- As per the report published by the United Nations Development Programme, India's gross national income- GNP per capita fell to USD 6,681 in 2019 from USD 6,829 in 2018 on PPP-Purchasing Power Parity basis.

- The report further added that the evidence from Colombia to India indicates that the ownership of land and financial security helps in improving women's security. It also reduces the risk of gender-based violence and clearly indicates that owning land can empower women.

- The report highlights that the indigenous children in India, Cambodia, and Thailand have shown more malnutrition-related issues such as wasting and stunting.

- In India, different responses in the behaviour of parents, as well as some form of disinvestment in the health and education of girls, is one of the major reasons for higher malnutrition among girls than boys as a consequence of shocks that are likely to be linked to the climate change.

3.2 ASOKENAGAR-1 WELL

Why in news?

Union Minister for Petroleum & Natural Gas dedicated the Bengal Basin, the 8th producing basin of India, to the nation.

Highlights:

- ONGC took a major step by commencing oil production from the well Asokenagar-1, Bengal Basin in 24 Paragana district.

- The well Asoknagar-1 was completed as an oil producer under Early-Monetization Plan issued by Government of India.

- This makes ONGC having discovered and put to production seven out of the eight producing basins of India covering 83 percent of established oil & gas reserves.

- ONGC is India's largest oil and gas producer contributing 72 percent of the country's hydrocarbon production.
- The well Asokenagar-1 has heralded the end of painstaking search for hydrocarbons in the region by ONGC by sending its first hydrocarbon consignment produced during well testing to IOCL's Haldia Oil Refinery done earlier on 5 November 2020.

3.3 R CLUSTER

Why in news?

Reliance Industries Ltd and BP (British Petroleum) have announced the start of gas production from the R cluster, the deepest off-shore gas field in Asia.

About:

- The field (R cluster) 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.
- The field is the first of three Deepwater gas projects in the KGD6 block jointly developed by RIL and BP to come onstream.
- RIL has a participating interest of 66.7% in the KG-D6 block and BP has a participating interest of 33.3% in the block.

Why is this important?

- The R cluster, along with the Satellite Cluster and MJ gas fields in the Krishna Godavari Basin are expected to produce around 30 MMSCMD (Million standard cubic metres per day) of natural gas or about 15% of India's projected demand for natural gas by 2023.
- The R cluster field alone is expected to have a peak production of 12.9 MMSCMSD or about 10% of India's current natural gas output.

3.4 E20 FUEL

Why in news?

The Ministry of Road Transport and Highways has published a draft notification dated 11th December 2020, seeking comments from the public for adoption of E20 fuel as an automotive fuel and for the adoption of mass emission standards for this fuel.

About E20 Fuel:

- E20 fuel is blend of 20% of ethanol with gasoline.

- The notification facilitates the development of E20 compliant vehicles.

- It will also help in reducing emissions of carbon dioxide, hydrocarbons, etc. It will help reduce the oil import bill, thereby saving foreign exchange and boosting energy security.

- The compatibility of the vehicle to the percentage of ethanol in the blend of ethanol and gasoline shall be defined by the vehicle manufacturer and the same shall be displayed on the vehicle by putting a clearly visible sticker.

3.5 DRAFT NATIONAL RAIL PLAN

Indian Railways issued draft National Rail Plan.

Highlights:

- 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.
- It aims to Reduce transit time of freight substantially by increasing average speed of freight trains from present 22 Kmph to 50 Kmph.
- Three Dedicated Freight Corridors, namely East Coast, East-West & North-South identified along with timelines. PETS survey already underway
- 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.
- Several new High Speed Rail Corridors have also been identified. Survey on Delhi-Varanasi High Speed Rail already under way.

Vision 2024:

As part of the National Rail Plan, Vision 2024 has been launched for accelerated implementation of certain critical projects by 2024 such as100% electrification,upgradation of speed to 160 kmph on Delhi-Howrah and Delhi-Mumbai routes,upgradation of speed to 130kmph on all other Golden Quadrilateral-Golden Diagonal (GQ/GD) routes andelimination of all Level Crossings on all GQ/GD route.

3.6 CURRENCY MANIPULATION

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

About:

- The term 'currency manipulator' 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.

- 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.

3.7 GPS-BASED TOLL COLLECTION SYSTEM

Why in news?

Union Minister of Road Transport & Highways has said that the Government has finalised GPS-based(Global Positioning System) technology toll collection to ensure seamless movement of vehicles across the country.

Highlights:

- This will ensure India becomes 'toll booth free' in next two years.

- The toll amount will be deducted directly from the bank account based on the movement of vehicles. While now all commercial vehicles are coming with vehicle tracking systems, the Government will come up with some plan to install GPS technology in old vehicles.

- The Minister expressed hope that the toll collections may reach Rs 34 thousand crore by March 2021. By using GPS technology for toll collection, the toll income in next five years will be Rs 1.34 lakh crore.

3.8 ACCELERATING INDIA'S COVID-19 SOCIAL PROTECTION RESPONSE PROGRAMME

The Government of India and the World Bank signed a $400 million project to support India's efforts at providing social assistance to the poor and vulnerable households, severely impacted by the COVID-19 pandemic.

About the Program:

- This is the second operation in a programmatic series of two. The first operation of $750 million was approved in May 2020.

- The programme will strengthen the capability of state and national governments in India to provide coordinated and adequate social protection to the poor and vulnerable from the shocks triggered by the COVID-19 pandemic.

- This programme will help further expand and deepen the coverage of India's social protection systems by helping these vulnerable groups in urban and peri-urban areas across the country.

- The $400 million credit is from the International Development Association (IDA) – the World Bank's concessionary lending arm.

3.9 AIRCRAFT LEASING REGULATIONS

International Financial Services Centres Authority (IFSCA) has issued consultation paper on proposed Aircraft Leasing Regulations.

Highlights:

- India is poised to become the 3rd largest aviation market in the world by 2022.

- In January 2019, India's Ministry of Civil Aviation published a report, 'Project Rupee Raftar', that provided roadmap to developing an aircraft financing and leasing industry in India.

- The report identified International Financial Services Centre (GIFT city) for developing aircraft leasing and financing eco-system in the country.

- In October, 2020, Government of India , on the recommendation of IFSCA, had notified 'Aircraft lease which shall include operating and financial lease of aircraft or helicopter and their engines' as a financial product under International Financial Services Centres Authority Act, 2019.

- Considering, Aircraft leasing is a relatively new industry in India and Aircraft Leasing related regulations are different across various financial centres, IFSCA has prepared draft regulations for Aircraft Leasing and in order to get inputs from stakeholders as well as public comments.

3.10 DakPay

DakPay app has been launched as part of the ongoing efforts of providing Digital Financial Inclusion at the last mile across the country.

- The India Post payments Bank (IPPB) and the Department of Posts (DOP) virtually launched a new digital payment app 'DakPay'.

- As per the official statement, the app has been launched as part of the ongoing efforts of providing Digital Financial Inclusion at the last mile across the country.

- While announcing the launch of 'DakPay', Ravi Shankar Prasad, the Union Minister for Communications, Electronics & IT and Law & Justice, stated that Indian Post has stood the test of times by serving the country through various postal services physically and digitally during the lockdown. The launch of DakPay adds up to India Post's legacy, which is about reaching every household in the country.

- The service will not only give access to the postal products and banking services online but it will also be a unique concept where one can order and can avail the postal financial services at the doorstep.

- This double strength of services which will be offered in the form of online payments and home delivery of financial services combined with the network of postal department nationwide will be another step towards PM Modi's vision of financially inclusive as well as AatmaNirbhar Bharat.

DakPay: Digital payment app by India Post

DakPay is a suite of digital payment and assisted banking services by India Post Payments Bank and India Post through the postal networks across the country for catering to the financial needs of various sections of the society such as:

- Sending money to the loved ones (Domestic Money Transfers)

- Scan QR Code and to make payments for merchants/services digitally (with UPI and Virtual Debit Card)

- Enabling a cashless ecosystem through biometrics

- Utility Bill Payment Services and to provide interoperable banking services to the customers of any bank.

3.11 RBI to establish first Automated Banknote Processing Centre in Jaipur

- The Reserve Bank of India will be setting up its first Automated Bank note Processing Centre (ABPC) in Jaipur for storage, receipt and dispatch of currency notes. The decision was taken to effectively deal with the increasing circulation of banknotes.

- The RBI document stated that cash remains an important mode of payment for most Indian citizens, notwithstanding the growth in digital payments. In fact, the currency notes in circulation have been steadily increasing with the rise in digital payments. Besides this, the global trend of the increasing volume of banknotes in circulation has been witnessed in India as well.

- This increased volume of currency noted made it necessary for the apex bank to relook the present system of cash management and a need is felt to automate the handling of banknotes for the receipt, storage, processing and destruction with the use of modern technology..

Automated Banknote Processing Centre: Key Functions

- The key functions of the proposed Automated Banknote Processing Centre will include automated storage and receipt of fresh banknotes from printing presses and automated retrieval and dispatch of the notes to the identified issue offices or currency chests.

- The centre will also facilitate storage, processing and destruction of soiled bank notes to and from identified bank branches and Currency Chests (CCs) covering the jurisdiction of the States being catered.

- It will be designed to store the daily average fresh note stock requirement and hold the stock of about 15 days of soiled banknotes and provide commensurate processing and destruction capacities.

- The RBI has projected storage capacity requirements for the ABPC, which includes a daily average of fresh note stock at 1,883 million pieces during 2024-25, 2,950 million pieces during 2029-30 and 6,853 million pieces during 2039-40.

- The Centre is also projected to store about 7,718 million pieces of soiled notes during 2024-25, 11,568 million pieces during 2029-30 and 27,757 million pieces during 2039-40.

Significance
The volume of bank notes in circulation increased by almost three-fold from March 2001 to March 2019 and it is expected to rise even further in the years to come. The supply of banknotes by the presses has also increased by about four times from March 2001 to March 2019 and is expected to increase manifolds.
What are Currency Chests?
The currency chests are **storehouses of currency notes** and the notes stored there is distributed to various bank branches or ATM network for distribution to the public. However, the unfit notes withdrawn from circulation are verified through a Currency Verification and Processing System (CVPS) and destroyed by shredding.

3.12 BSE rolls out e-agricultural spot market platform
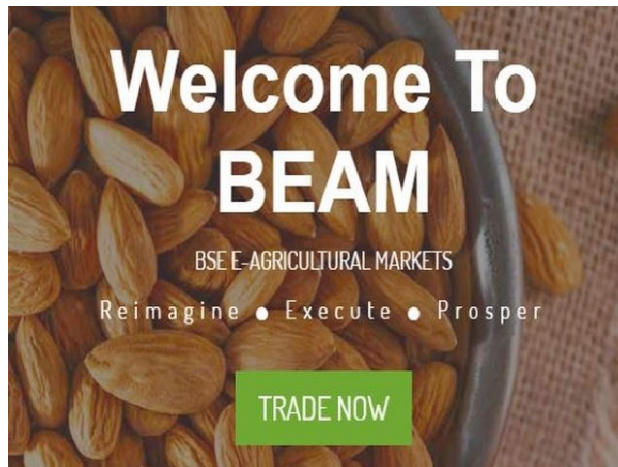
- The Bombay Stock Exchange on December 11, 2020, launched an electronic spot platform, 'BSE E-Agricultural Markets Limited' or BEAM, for the agricultural commodities through its subsidiary BSE Investments Limited.

- The platform started the beta operations on December 11and facilitated the transactions across value chains consisting of producers, intermediaries, consumers as well as ancillary services. BSE also witnessed trading of two tons of imported almonds in value of more than Rs. 6 lakh on the launch day of BEAM.

- As per the statement by BSE, BEAM will function as a national level, electronic, institutionalized, transparent commodity spot trading platform which will also be in line with PM Modi's vision of creating a single market.

Significance of BEAM:

- As per the CEO of BEAM, Rajesh Sinha, India needs a dedicated e-market platform for the agricultural spot markets that will have no conflict of interests to promote the interests of the producers.

- BEAM will be the only company in India which will fulfill this requirement. It will play a significant role in creating an efficient spot market for agricultural produce in the country. It will also work closely with the value chain participants.

Features of BEAM:

- BEAM will have state-of-the-art-technology for offering customized solutions to the farmers, traders, and stockholders for facilitating a risk-free purchase as well as the sale of various agricultural commodities.

- It will ensure enhanced producer realization, lower cost of intermediation, more competitive consumer prices, and improved procurement efficiency.

- BEAM will help in removing the bottlenecks associated with trading and procurement.

- With the help of the platform, farmers in one state will easily be able to reach out to the markets of other states and will be able to auction their produce.

- BEAM will not just help farmers and the farmer collectives for discovering the best prices for their produce based on its quality but will also help in building capacity to help processors, intermediaries, and exporters procure from states.

RBI's Positive Pay System
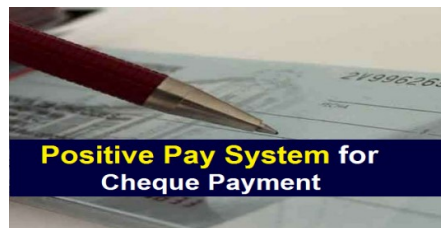
- The Reserve Bank of India announced the introduction of new rule 'Positive Pay System' for Cheque Truncation System (CTS) in August 2020 to ensure safe and sound cheque payments.

- This new rule for cheque payment will become operational from January 1, 2021. Under this new rule, cheque payments of Rs 50,000 and beyond will require re-confirmation of key details.

- As per the RBI's notification "Positive Pay System for Cheque Truncation System", the National Payments Corporation of India (NPCI) has been given the responsibility to develop the Positive Pay in the CTS and make it available to the banks. In turn, the participant banks need to enable the system for account holders issuing cheques amounting Rs 50,000 and above. The Member banks can also implement the similar mechanism for the cheques collected outside the CTS.

- Banks need to make the account holders aware about the features of Positive Pay System through SMS, website, internet banking and through display in their branches and ATMs.

- This mechanism will cover around 20% of total issued cheques by volume and 80% of total issued cheques by value in India. Have a look at the other important details of the Positive Pay System below:

What is Positive Pay System:

Positive Pay is a tool under the Cheque Truncation System (CTS) that detects any fraudulent activity involved in cheque payments. It does so by matching certain details of the cheque as provided by the issuer to the drawee bank with the presented cheque.

How cheque payment gets processed under the Positive Pay mechanism:

- Under the Positive Pay mechanism ,the cheques get processed by the drawee bank on the basis of information shared by its customer while issuing the cheque.

- Under this Positive Pay System, the cheque issuer submits a few details of cheque such as date, name of the beneficiary, cheque amount, etc. to the drawee bank electronically through SMS, Internet Banking, Mobile App, ATM, etc.
- These details are cross checked with the presented cheque through the Cheque Truncation System (CTS). Any discrepancy in the details will be flagged by the CTS to drawee bank and presenting bank. The banks will then take the redressal measures.

3.13 RBI makes RTGS system available 24x7

- The Reserve Bank of India (RBI) made the Real-Time Gross Settlement (RTGS) system available to the customers **24x7 on all days of the year from December 1, 2020. The announcement was made RBI Governor Shaktikanta Das.**
- The Real-Time Gross Settlement system was earlier available to the customers only on working days of a week from 7am to 6 pm, except second and fourth Saturdays of every month. These timings were applicable till November 30, 2020.
- Besides this, the apex bank has decided to increase the limit for contactless card transactions from Rs 2000 to Rs 5,000 at Point of Sale (PoS) terminals from January 1, 2020 based on the feedback from stakeholders in view of the COVID-19 pandemic.

ABOUT RTGS:

The **Real-Time Gross Settlement (RTGS) system** is a fund transfer system that is generally used for large-value transactions. It happens in real-time.

1. The **fund transfer through RTGS is instantaneous,** as the beneficiary bank receives the instruction to transfer funds immediately when the transaction is carried out.
2. Mainly high-value fund transfers are carried through RTGS. The **minimum amount** to be transferred through RTGS is **Rs 2 lakh** and there is no maximum limit.
3. The beneficiary bank receives instructions to make the fund transfer immediately after the transaction is carried out. Every transaction is settled individually and the transfer is instantaneous. While NEFT system also handles fund transfers up to Rs 2 lakh but the transaction is not instantaneous and is usually executed in a couple of hours.

4. The money transfer under RTGS can be done through internet banking, mobile banking or by visiting a bank branch.

5. The RBI has put a cap on RTGS transaction charges. The banks can charge up to Rs 24. 50 for RTGS fund transfer between 2-5 lakh and a maximum of Rs 49.50 for fund transfers more than 5 lakh. The customers have to pay GST on the amount.

3.14 ADB launches 'Asia Pacific Vaccine Access Facility' for its developing members

As the developing members start preparing for vaccination programs, they need financing for procuring the vaccines as well as for appropriate plans and knowledge to manage the vaccination process equitably, safely and efficiently.

- The Asian Development Bank has launched for its developing members APVAX- Asia Pacific Vaccine Access Facility.

- A 9 billion dollar vaccine initiative by the bank will offer rapid and equitable support to its developing members as they deliver and procure the safe and effective Coronavirus vaccines.

- According to MasatsuguAsakawa, ADB President, as the developing members of ADB start preparing to vaccinate their people, they need financing for procuring the vaccines as well as for appropriate plans and knowledge to manage the vaccination process equitably, safely and efficiently.

- He added that APVAX will play a crucial role in helping the developing members meet the challenges, to overcome the pandemic and to focus on economic recovery. As the effect of the pandemic continues, the economic growth in developing Asia has been projected to contract by 0.4% in 2020.

How APVAX will help the vaccination process in developing member nations?

The APVAX will be providing a comprehensive framework for supporting the developing Asia's vaccine access with the use of two components:

• **The Rapid Response Component:** It will be providing timely support for procurement of vaccines, critical vaccines diagnostics and transportation of vaccines from the place they have been purchased to the developing members of ADBs.

• **The Project Investment Component:** It will be supporting investments in systems for successful delivery, distribution and the administration of vaccines. The component will also support associated investments in community outreach, building capacity and surveillance. It may include areas such as distribution infrastructure, cold-chain storage and transportation, vehicles, and other physical investments. The component by ADB may also be used for developing or expanding the capacity of manufacturing vaccines in the developing member nations.

Why successful vaccination programs are significant?

- Successful vaccination programmes can easily break the chain of virus transmission, can save lives and mitigate the pandemic's negative impact on the economy by restoring people confidence in their ability to travel, work and socialize safely.

- The top priority of Asian Development Bank's COVID-19 response efforts has been to promote equitable, safe and effective access to the vaccines.

- The financing of vaccines by ADB will also be in close coordination with other development partners including World Health Organisation, World Bank Group, GAVI, COVID-19 Vaccines Global Access Facility- COVAX and bilateral and multilateral partners.

ADB's support to its developing members:

- ADB, in April 2020, approved 20 billion dollar package for supporting its developing members to address the impacts of the ongoing health crisis. It also streamlined some procedures for delivering quicker and more flexible assistance.

- The Bank has also committed 14.9 billion dollars in grants, loans, and technical assistance, which includes 9.9 billion dollars in budget support from COVID-19 pandemic response option- CPRO and support the private sector.

- In November 2020, 20.3 million dollars was announced in additional technical assistance for establishing systems to enable equitable and efficient distribution of vaccines across Asia and Pacific.

4. ENVIRONMENT

4.1 Arctic National Wildlife Refuge Oil deposits

The Arctic National Wildlife Refuge is a wildlife refuge in the Alaskan region in the USA. It is the largest wildlife reserve in the USA. USA holds oil rights in an area called '1002 area' in the coastal plains. The Arctic oil is a source of new rivalries among the countries and this has been termed 'New Cold War'.

About Arctic National Wildlife Refuge

- It is the largest National Wildlife Refuge in the United States. It is located along the coastal plains of the Beaurfort Sea.

- There has been political controversies going on in the region about drilling for oil. Apart from rivalries between countries, oil drilling in the region will affect the natural wildlife in the region terribly. The Porcupine Caribou will be the most affected. It will also affect the lives of the indigenous tribes in the region. The drilling will destroy the permafrost causing extensive damages to the lands.

- In 2017, President Donald Trump signed the Tax Cuts and Jobs Act, 2017 that opened the 1002 area of the Arctic National Wildlife Refuge to oil and gas drilling.

4.2 Malayan Giant Squirrel

A recent study by the Zoological Survey of India (ZSI) has projected that numbers of the Malayan Giant Squirrel (Ratufabicolor) could decline by 90% in India by 2050.

Key points

- According to the ZSI, destruction of its habitat could restrict the squirrel to only southern Sikkim and North Bengal by 2050,.

- Only 43.38% of the squirrel's original habitat in India is now favourable to it

- By 2050, the favourable zone could shrink to 2.94% of the area the species was meant to inhabit.

- The Malayan Giant Squirrel is one of the world's largest squirrel species.

- It is given Near threatened status under IUCN.

- It is found in West Bengal, Sikkim, Assam, Arunachal Pradesh, Meghalaya, and Nagaland.

- Found in countries like Southern China, Thailand, Laos, Vietnam, Burma, the Malayan Peninsula, Sumatra, and Java.

India is home to three giant squirrel species

1.Malayan Giant Squirrel

2.Indian Giant Squirrel and

3.Grizzled Giant Squirrel – found in peninsular India.

4.3 Bhashan Char Island

The Bhashan Char Island is a remote uninhabited island of Bangladesh, located in the Bay of Bengal. It is also known as Char Piya.Bangladesh has started moving Rohingya refugees to a controversial flood-prone Bhashan Char island in the Bay of Bengal despite opposition from rights activists.

Concerns

- The Bashan Char Islands are also called the Floating Islands.
- The island was formed from a build-up of silt in the Bay of Bengal only 20 years ago, and concerns have been consistently raised about Bhasan Char's exposure to extreme weather and distance from the mainland in emergencies since Bangladesh first raised the idea in 2015.
- The island will become inaccessible during floods and rough weather.
- The Forestry Department of Bangladesh have been planting mangroves since the proposal of the project began. However, around 5,000 to 7,000 acres of the forest have disappeared in to the sea during the same time period due to natural disasters.

Rohingyas

- Rohingyas are indigenous to Rakhine State (also known as Arakan) in Myanmar settled since the 15th century.
- However, according to Myanmar government, they are illegal immigrants migrated to Rakhine following Burmese independence and Bangladesh liberation war.
- They are victims of an organized genocide and are one of the world's most persecuted minorities.

Rohingyas in India

- Nearly 40000 Rohingyas have their home in India now. India has been receiving Rohingya refugees and allowing them to settle in the different parts of the country over the years, especially after the communal violence in the state of Rakhine in 2012.
- Since India is not a signatory to the United Nations Convention on Refugees, refugee status granted by the United Nations High Commissioner for Refugees (UNHCR) to the Rohingya was irrelevant to their deportation.
- According to the Government of India, there are no refugee camps established for either Bangladeshis or Rohingyas in India and there were only schemes of assistance for Tibetan and Sri Lankan refugees.
- India considers the issue as an internal affair of Myanmar.
- Indian believes that ASEAN has an undeniable responsibility to resolve this crisis.
- India already has several issues like poverty, unemployment etc for her own people.

4.4 New zealand declares climate emergency

- New Zealand declared a climate emergency and pledged that its public sector would become carbon neutral by 2025.

- New Zealand Prime Minister Jacinda Ardern said that the climate emergency declaration was based on the climate change findings of an Intergovernmental panel, which stated that to avoid more than a 1.5 degree Celsius rise in global warming, the emission would need to be cut by 45 percent from 2010 levels by 2023 and reach zero by 2050.

- The declaration is an acknowledgment of the next generation and the burden they will carry if we do not get this right and take action now.

Highlights of the move

- The climate emergency declaration notes the "devastating impact" that volatile climate will have on New Zealand, as well as the "alarming trend in species decline".

- Under the declaration, the New Zealand government has promised that its public sector will achieve carbon neutrality by 2025.

- The programme also includes an immediate focus on phasing out the largest and most active coal boilers and reducing the size of the car fleet and purchasing more electric or hybrid vehicles. The government will also set a green standard for public sector buildings.

- With this, New Zealand joins 32 other countries including Japan, Canada, France and Britain that have declared a climate emergency.

Background

- New Zealand Prime Minister Jacinda Ardern returned to power in October after her centre-left Labour Party recorded a sweeping victory in New Zealand General Elections, its biggest in half a century.

- During her first time, Arden had passed a Zero Carbon Bill, which sets the world's most ambitious frameworks for net-zero emissions by 2050 with an exemption for farming and banned new offshore oil and gas exploration.

- New Zealand had then become one of the only countries in the world to put in place a legally binding requirement to stay within the threshold of 1.5 degrees of global warming above pre-industrial levels.

4.5 Eco-Bridge

Uttarakhand, recently built its first eco-bridge for reptiles and smaller mammals in Nainital district.

- On the Kaladhungi-Nainital Highway, Uttrakhand, Chandra Sekhar Joshi, Ramnagar Divisional Forest Officer, supervised the building of the new eco-bridge.

- The 90-feet-long and 5-feet-wide eco bridge is Uttarakhand's first wildlife corridor.

- It is a special path created by the state forest department for reptiles and other small animals to safely pass from one side of the road to the other.

- No cement or iron was used in the construction of the bridge, it is made from bamboo, jute and grass, and is the first of its kind.

What are Eco-bridges?

- Eco Bridges are wildlife corridors also known as wildlife crossing that are a link of wildlife habitat which connects two larger areas of similar wildlife habitat.

- Eco Bridges aims at enhancing wildlife connectivity. It connects wildlife populations that would otherwise be separated by human activities or structures such as roads and highways, other infrastructure development, or logging and farming, etc.

- Eco-bridges include underpass tunnels, viaducts, and overpasses (mainly for large or herd-type animals); amphibian tunnels; fish ladders; Canopy bridge (especially for monkeys and squirrels), tunnels and culverts (for small mammals such as otters, hedgehogs, and badgers); green roofs (for butterflies and birds).

- Usually these bridges are overlaid with planting from the area to give it a contiguous look with the landscape.

4.6 First organic UT of India

Ministry of Agriculture has declared Lakshadweep island as organic under participatory guarantee scheme.

The Union Territory (UT) of Lakshadweep became the first 100 percent organic UT of India after Sikkim had become the first state to become 100% organic.

Key highlights

- In the month of September, Lakshadweep administration formally declared that its entire farming community was practicing organic agriculture and using organic inputs such as compost, poultry manure, green leaf manure.

- The UT was following organic or biological methods for plant protection as well.

- Lakshadweep administration had imposed a formal uniform ban on sale, use and entry of synthetic chemicals for agriculture purpose from October 2017 onwards to make the islands a chemical-free zone.

- As per the requirement of organic certification, no genetically modified organism is allowed to be used in the entire territory.

Organic Farming

Organic farming is a farm design and management system that develops an ecosystem of agriculture production without using any form of synthetic external inputs like pesticides, synthetic hormones, chemical fertilizers or genetically modified organisms.

Participatory guarantee system

- PGS-India (Participatory Guarantee System of India) is a quality assurance initiative that is locally relevant, emphasize the participation of stakeholders, including producers and consumers and operate outside the frame of third party certification.
- It is a decentralized Organic farming certification system.
- PGS is a process in which people in similar situations (in this case small holder producers) assess, inspect and verify the production practices of each other and take decision on organic certification (PGS-Green and PGSOrganic).

4.7 TsoKar wetland complex

India has added TsoKar Wetland Complex in Ladakh as its 42nd Ramsar site.

It is also a second one in the Union Territory (UT) of Ladakh.

Key highlights

- TsoKar Basin is a high-altitude wetland complex, consisting of two principal waterbodies, StartsapukTso, a freshwater lake and TsoKar itself, a hyper saline lake, situated in the Changthang region of Ladakh, India.
- It is called TsoKar, meaning white lake, because of the white salt efflorescence found on the margins due to the evaporation of highly saline water.
- It is also an Important Bird Area (IBA) as per BirdLife International and a key staging site in the Central Asian Flyway.

Wetland

- A wetland is a distinct ecosystem that is flooded by water, either permanently or seasonally, where oxygen-free processes prevail.
- The primary factor that distinguishes wetlands from other landforms or water bodies is the characteristic vegetation of aquatic plants, adapted to the unique hydric soil.

What is the Ramsar Convention?

- It is an international treaty for the conservation and wise use of wetlands.
- It is named after the Iranian city of Ramsar, on the Caspian Sea, where the treaty was signed on 2 February 1971.
- Known officially as 'the Convention on Wetlands of International Importance especially as Waterfowl Habitat' (or, more recently, just 'the Convention on Wetlands'), it came into force in 1975.

Montreux Record

- Montreux Record under the Convention is a register of wetland sites on the List of Wetlands of International Importance where changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference.

- It is maintained as part of the Ramsar List.
- The Montreux Record was established by Recommendation of the Conference of the Contracting Parties (1990).
- Sites may be added to and removed from the Record only with the approval of the Contracting Parties in which they lie.
- Currently, two wetlands of India are in Montreux record: Keoladeo National Park (Rajasthan) and Loktak Lake (Manipur).
- Chilka lake (Odisha)was placed in the record but was later removed from it.

4.8 India's First Hot Air Balloon Safari

The Forest Minister of Madhya Pradesh recently launched the first hot air balloon safari of India in the Bandhavgarh Tiger Reserve of India in MP.

About Hot Air Balloon Ride

- The hot air balloon ride is to be restricted in the buffer area. The service is to be operated by a Jaipur based Sky Waltz company.
- Tourists can watch tigers, Indian Sloth bear and leopards from a height during the ride. The service is to be introduced in other tiger reserves of the State such as Pench Tiger Reserve, Panna Tiger Reserve.

Significance

- The hot air balloon safari is the first in any tiger reserve in the country. The addition of the activity at the Bandhavgarh Tiger Reserve has added one more adventure for tourists coming to the place.
- The hot air balloons work on the principle "Hot air rises". When the air inside the balloon is heated, it becomes lighter than the cooler air outside. This causes the balloon to float upwards. When the air is allowed to cool, the balloon begins to come down.
- The hot air balloons do not have separate mechanism for steering or propulsion. The balloons use the speed of the wind to move.

Bandhavgarh National Park

- Bandhavgarh National Park is spread at vindhya hills in Madhya Pradesh. It is known for the Royal Bengal Tigers. The density of the Tiger population at Bandhavgarh is the highest known in India.
- Bandhavgarh National Park consists of mixed vegetation ranging from tall grasslands to thick Sal forest and so is the perfect habitat of variety of animals and birds.
- Bandhavgarh was declared a national park in 1968 and then became Tiger Reserve in 1993.
- In the 2019 census Madhya Pradesh state recorded the most number of estimated tigers at 526, thus earning the title "Tiger State".

4.9 IMD Centre at Leh

- The Union Minister of Earth Sciences, Dr. Harsh Vardhan virtually inaugurated the India Meteorological Department's Centre at Leh in Ladakh.

- The centre at Leh, Ladakh will be a world-class facility for high-altitude meteorology. It will be catering to various kinds of climate and weather needs of the people as well as the administration of Ladakh.

- IMD's centre is located at a height of 3,500 meters. The centre will be creating history as it will be the highest meteorological centre in the country.

- India Meteorological Department (IMD) has established a surface observatory at Leh for reporting daily Meteorological parameters like pressure, humidity, temperature, snowfall, etc.

- At present Ladakh has got 4 Automatic Weather Stations (AWS), two each in both districts of which one is at Drass, the coldest place in India.

- Apart from providing the forecast at the district level, IMD will also be providing the weather details for important tourist places such as Pangong Lake, Nubra, Kargil, Zanskar, Drass, Khalsi, among other places.

- Some other important services that will be available by IMD will be forecast for mountaineering, highway forecast, agriculture, trekking, low and high temperature, flash flood warning, among others.

About IMD

- Formed in 1875, the India Meteorological Department (IMD) is the national meteorological service of the country and it is the chief government agency dealing in everything related to meteorology, seismology, and associated subjects.

- The administrative responsibilities of the Department are under the supervision of the Ministry of Earth Sciences of the Indian Government. The IMD is headquartered in New Delhi.

Functions of IMD

- Taking meteorological observations and providing current information and forecasting information for the most favorable operation of weather-dependent activities such as irrigation, agriculture, aviation, shipping, offshore oil exploration, and so on.

- Giving warnings against severe weather phenomena such as tropical cyclones, dust storms, heat waves, cold waves, heavy rains, heavy snow, etc.

- Providing met-related statistics needed for agriculture, industries, water resources management, oil exploration, and any other strategically important activities for the country.

- Engaging in research in meteorology and allied subjects.

- Detection and location of earthquakes and evaluation of seismicity in various parts of the country for developmental projects.

4.10 Air Quality Commission's Directions on Piped Natural Gas

The Air Quality commission recently directed all the industries in the National Capital Region to switch over to Piped Natural Gas.

The twenty-member Commission was formed by Ministry of Environment.

The System of Air Quality and Weather Forecasting and Research (SAFAR) operating under Ministry of Earth Science recently announced that the air quality of the national capital has been deteriorating continuously. It has remained "Very Poor" category, with an overall Air Quality Index (AQI) score of 373.

Directions

- The commission directed the Delhi Pollution Control Committee to inspect and identify industries using unapproved fuels and take stringent penal actions in case of non-compliances.
- DPCC (Delhi Pollution Control Committee), Indraprastha Gas Limited and GAIL (Gas Authority of India Limited) are to provide required assistance.
- The commission has identified 1,644 industrial units spread across fifty industrial areas in Delhi to switch over to Piped Natural Gas.
- The deadline of switch over is January 31, 2021.

What is Radiation Fog?

Radiation Fog forms when all the solar energy exits the earth and allows the temperature to meet up dew point. This fog forms overnight as the air near the ground cools and stabilizes. Of all the different types of fog, Radiation Fog is the most common fog in India.

How is Radiation Fog formed?

It is formed when the ground cools due to outgoing radiation in the night. Also, there should be sufficient moisture in the atmosphere for radiation fog formation to cause condensation. Therefore, radiation fog if formed mainly during winter when Northern India gets winter rains due to Western Disturbances.

Commission for Air Quality Management in NCR and Adjoining Areas

The commission is a statutory authority setup to tackle air pollution and to monitor and improve air quality in the National Capital Region(NCR) and adjoining areas.

Composition:

Chairperson: The Commission is headed by a full-time chairperson who has been a Secretary to the Government of India or a Chief Secretary to a State government.The chairperson will hold the post for three years or until s/he attains the age of 70 years.

Members: It has members from several Ministries as well as representatives from the stakeholder States.It will also have experts from the CPCB, Indian Space Research Organisation (ISRO) and Civil Society.

Powers:

- The Commission has been conferred with the power to lay down air quality parameters, discharge of environmental pollutants parameters, to inspect premises violating the law, order closure of non-abiding industries or plants among others.

- The commission can supersede all existing bodies such as the CPCB and even the state governments of Haryana, Punjab, Rajasthan, and Uttar Pradesh. It will have the powers to issue directions to the states.

- Orders of the Commission shall prevail in case there is a conflict between the Central Pollution Control Board and the State Pollution Control Boards.

- It will have powers to restrict the setting up of industries in vulnerable areas and will be able to conduct site inspections of industrial units.

4.11 Himalayan serow

- A Himalayan serow has been sighted for the first time in the Himalayan cold desert region of Spiti, Himachal Pradesh.

- Wildlife officials believe this particular animal may have strayed into the Spiti valley from the Rupi Bhaba Wildlife Sanctuary, HP

- They are known to be found in eastern, central, and western Himalayas, but not in the Trans Himalayan region.

- It is a subspecies of the mainland serow (Capricornissumatraensis).

- It resembles a cross between a goat, a donkey, a cow, and a pig.

- It's a medium-sized mammal with a large head, thick neck, short limbs, long, mule-like ears, and a coat of dark hair.

Conservation status

- According to the IUCN, Himalayan Serows have experienced significant declines in population size, range size and habitat in the last decade, and this is expected to continue due to intensive human impact.

- Previously assessed as 'near threatened', the Himalayan Serow is now been categorised as 'vulnerable' in the IUCN Red List of Threatened Species.

- It is listed under Schedule I of The Wildlife Protection Act, 1972, which provides absolute protection.

4.12Miyawaki method of Afforestation

Recently ,Kerala Forest Dept. has adopted Miyawaki afforestation concept to be used in govt. offices, schools and puramboke land.

- Miyawaki method is a method of urban afforestation by turning backyards into mini-forests.
- Miyawaki is a technique pioneered by Japanese botanist Akira Miyawaki, that helps build dense, native forests in a short time.
- It includes planting trees as close as possible in the same area which not only saves space, but the planted saplings also support each other in growth and block sunlight reaching the ground, thereby preventing the growth of weed.
- Thus the saplings become maintenance-free (self sustainable) after the first three years.
- It helps to create a forest in just 20 to 30 years while through conventional methods it takes anywhere between 200 to 300 years.
- The approach is supposed to ensure that plant growth is 10 times faster and the resulting plantation is 30 times denser than usual.

Miyawaki Process

- The native trees of the region are identified and divided into four layers — shrub, sub-tree, tree, and canopy.
- The quality of soil is analysed and biomass which would help enhance the perforation capacity, water retention capacity, and nutrients in it, is mixed with it.
- A mound is built with the soil and the seeds are planted at a very high density — three to five sapling per square meter.
- The ground is covered with a thick layer of mulch.

Disadvantages

- Such forests lack some qualities of natural forests, such as medicinal properties and the ability to bring rain.
- Such fast-growing plantations are actually wood lots (a parcel of a woodland or forest capable of small-scale production of forest products (such as wood fuel, sap for maple syrup, sawlogs, and pulpwood) as well as recreational uses like bird watching, bushwalking, and wildflower appreciation) and cannot be termed as forests.
- Several environmentalists have questioned the efficacy of the method that accelerates the growth of trees and claims to match a forest's complex ecosystem.

4.13 Bihar migratory bird festival

- Bihar holds 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.

- The festival is being jointly organised by the Bhagalpur forest division, non-profit Bombay Natural History Society and the local Mandar Nature Club.
- The selection of Bhagalpur for the bird festival held special significance.This was because 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, according to environmentalists.
- A large number of migratory birds arrive in Bhagalpur every year and our prime objective behind holding the bird festival is to create awareness among people about the importance of migratory birds.

India's migratory route

India has 3 migratory flyways. They are the flight paths used by the birds. The flyways are Central Asian Flyway, Asian East Asian Flyway and East Asian Australasian Flyway.

The estimates of the migratory species in India has increased from 44 to 46 after COP13. 13th Conference of Parties was the Convention on the Conservation of Migratory species of Wild Animals. It was held in India in February 2020.

Convention on Conservation of Migratory species(CMS)

- Bonn Convention is another name to the Convention on Conservation of Migratory Species of Wild Animals (CMS.)
- The States and the range States from where the migratory species pass are brought together under CMS to enable measures for their conservation and protection.
- There are two appendices under the Bonn Convention:
- Appendix I (Endangered Species)- It comprises the list of those migratory species that are assessed as being in danger of extinction throughout their range or in some significant portion of their range. It also defines endangered species as those with a high risk of extinction in the wild in near future, as also defined by IUCN.
- Appendix II – It comprises those migratory species that need conservation through international agreements and will significantly benefit from such conservational efforts.

India and CMS

India has been a part of the Bonn Convention since 1983. Some of the important migratory species in India are:

➢ Amur Falcons
➢ Bar-headed Geese
➢ Black-necked cranes

- ➢ Marine turtles
- ➢ Dugongs
- ➢ Humpback Whales
- India will be the President of COP to Bonn Convention till 2023. India recently hosted COP 13 to Bonn Convention in February 2020:
- The theme of the 13th session of COP to Convention on the Conservation of Migratory Species of Wild Animals was, "Migratory species connect the planet and together we welcome them home."
- The mascot of the CMS COP 13 is Great Indian Bustard (Gibi).

4.14 Golden Peacock Environment Management Award

- Steel Authority of India Limited (SAIL) has been awarded with the Golden Peacock Environment Management award for the year 2020 in the steel sector.
- The award was given for its efforts in adopting various environmental measures like upgrading pollution control facilities, treatment and recirculation of wastewater from individual units and outfalls, enhancement in green cover and efficient solid waste management.
- SAIL has received the award for two consecutive years.
- Golden Peacock Environment Management Award is a prestigious award that was instituted by the World Environment Foundation in 1998. The award encourages the corporates to enhance their environmental performances.

Environmental Performance Indicators

SAIL showed improvement in the following key Environmental Performance Indicators

- ✓ Particulate matter emission reduced by 16%
- ✓ Carbon dioxide emission reduced by 2%
- ✓ Water consumption reduced by 9%
- ✓ Effluent discharge reduced by 14%
- ✓ Effluent load reduced by 13%
- ✓ Solid waste recycling increased by 5%
- ✓ Blast furnace slag utilisation increased by 11%

4.15 International Mountain Day

- Every year International Mountain Day is celebrated on December 11 by United Nations and several other international organisations.
- It is important to conserve mountains as they are home to 15% of world population. They also host more than half of world biodiversity hotspots. Also, conserving mountains is a key part of Goal 15 of the Sustainable Development Goals.

- This year, the International Mountain Day is being celebrated under the theme, Mountain Biodiversity.
- The first International Mountain Day was celebrated in 2003.
- The target four of the Sustainable Development Goal 15 is dedicated to the conservation of mountains biodiversity.
- The decade 2021 to 2030 was declared as the UN Decade on Ecosystem Restoration. This includes mountain ecosystem as well.

Importance of Mountains

According to the United Nations, out of the 20 plant species that supply 80% of the world food, six are diversified in the mountains.More than half of the humanity rely on mountain fresh water for every day life. More than 30% of the key biodiversity areas in the world are located in the mountains.

4.16 Climate Change Performance Index

The Global Climate Change Performance Index was recently released by the New Climate Institute, Germanwatch and CAN (Climate Action Network).

- The CCPI is an independent monitoring tool for tracking countries' climate protection performance. It has been published annually since 2005.
- Using standardised criteria, the CCPI looks at four categories, with 14 indicators: Greenhouse Gas Emissions (40% of the overall score), Renewable Energy (20%), Energy Use (20%), and Climate Policy (20%).
- The CCPI's unique climate policy section evaluates countries' progress in implementing policies working towards achieving the Paris Agreement goals.
- No country was doing enough to meet the goals of the 2015 Paris Agreement, according to the index. Six G20 countries were ranked among very low performers. The United States, with a rank of 61, was the worst performer.

India's performance

- India, for the second time in a row, continued to remain in the top 10. The country scored 63.98 points out of 100.
- It received high ratings on all CCPI indicators except 'renewable energy', where it was categorised as having a 'medium' performance.
- Last year, India had been ranked at the ninth position, with an overall score of 66.02.
- India needed to focus more on renewable energy, both, as a mitigation strategy and for its post-novel coronavirus disease (COVID-19) green recovery, the report said.

4.17 Avian Flu in Rajasthan

The Jhalawar town of Rajasthan has imposed a curfew in one-kilo metre radius after it was confirmed that fifty crows died of bird flu.

The Animal Husbandry department and the wildlife department inspected the area and sent samples to the National High Security Animal Disease Laboratory in Bhopal.

The laboratory identified that the birds were affected by Avian Flu.

What is Avian Flu?

Avian Influenza is a disease caused by infection due to Avian Influenza Type A virus. These viruses occur naturally in aquatic birds and has the potential to infect domestic poultry and other birds and animals.

Which virus causes Avian Influenza?

The Avian Influenza is caused by Influenza virus. The H5N1 was the first Avian Influenza virus to infect humans. The first infection occurred in Hong Kong in 1997.

India and Influenza virus?

In September 2019, the World Organization of Animal Health declared India as free from the Influenza virus, H5N1. This lasted only for a few time period and an another outbreak occurred.

4.18 European Union bans Export of Plastic Waste to poor countries

- Recently European Union announced that it is to completely ban the exports of unsorted plastic to poor nation.
- The new rules of the EU will amend the Waste Shipment Regulation 2006.
- The new norms are to ban the exports to less industrialised nations outside OECD (Organisation for Economic Co-operation and Development).
- The new norms are a part of the Green Deal of European Union (making Europe climate neutral in 2050) to establish a circular economy.
- The new rules allows plastic waste, hazardous and hard to recycle waste to be exported to OECD nations.
- However, it will allow the export of plastic waste only to countries that intends to recycle.
- It also allow the EU countries to export clean, non-hazardous waste to any non-OECD nations.
- These new rules have been imposed after China banned plastic import in the year 2018.
- They have been imposed based on Basel Convention, 1989.

Basel Convention of 1989

This Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was signed in the year1989. The Basel convention was signed to reduce the movement of hazardous waste between the countries. As of October 2018, 186 states have signed the convention including EU.

The Main principles of Basel Convention

1.Minimise hazardous waste generation at the source.

2.Reducetransboundary movement of hazardous wastes.

3.Treat and dispose hazardous waste as close as possible to their source of generation.

5. SCIENCE & TECHNOLOGY

5.1 UN removes Cannabis from 'Most Dangerous Drug' Category

- The United Nations Commission on Narcotic Drugs (CND) voted to remove cannabis and cannabis resin from Schedule IV of the 1961 Single Convention on Narcotic Drugs, decades after they were first placed on the list.

- With this, CND has chosen to affirm a World Health Organisation (WHO) recommendation from 2019 to remove cannabis from its 'most dangerous' category.

- India was part of the voting majority, along with the US and most European nations.

- China, Pakistan and Russia were among those who voted against, and Ukraine abstained.

Regulations

- The Vienna-based CND, founded in 1946, is the UN agency mandated to decide on the scope of control of substances by placing them in the schedules of global drug control conventions.

- Cannabis has been on Schedule IV the most dangerous category of the 1961 Single Convention on Narcotic Drugs for as long as the international treaty has existed.

- The law around cannabis in India can be found in the Narcotics Drugs and Psychotropic Substances Act, 1985.

CANNABIS

- Cannabis, also known as marijuana among other names, is a psychoactive drug from the Cannabis plant used primarily for medical or recreational purposes.

- The main psychoactive component of cannabis is tetrahydrocannabinol (THC), which is one of the 483 known compounds in the plant, including at least 65 other cannabinoids, including cannabidiol (CBD).

- It is used by smoking, vaporizing, within the food, or as an extract.

Consequences of the decision

- The reclassification of cannabis by the UN agency, although significant, would not immediately change its status worldwide as long as individual countries continue with existing regulations.

- The decision would add momentum to efforts for decriminalizing cannabis in countries where its use is most restricted, while further legalizing the substance in others.

- Scientific research into marijuana's medicinal properties is also expected to grow.

- Legalising and regulating cannabis will "undermine criminal markets" as well as its smuggling and cultivation.

5.2 Dust samples from Hayabusa2

Japan Aerospace Exploration Agency (JAXA) has received a capsule from the unmanned Hayabusa 2, carrying the first extensive samples of dust from the asteroid Ryugu.

- Hayabusa 2 was launched from Japan's Tanegashima space centre in 2014 and took four years to reach the asteroid Ryugu.

- The mission builds on the original Hayabusa mission that was launched in 2003 and successfully linked up with asteroid Itokawa in 2005.

- It returned samples to Earth in 2010 marking the first time when sample materials from an asteroid were brought back to Earth.

- Hayabusa is the Japanese term used for the peregrine falcon, which is the fastest bird during its hunting dive (200 mile per hour).

- The space probe orbited above the asteroid for a few months to map its surface before landing. Then it used small explosives to blast a crater, collected the resulting debris and headed back to Earth in November 2019.

Significance

- Asteroids and comets are primitive bodies that can be considered to be the building blocks of the early Solar system and they hold a record of the birth and initial evolution.

- Larger planets like Earth went through a more complex evolution over which the pristine materials were melted and altered significantly. Due to this change, the materials found on large planets do not hold information into their early stages of formation.

- Asteroids and comets retain a record of when, where and in what conditions they were formed. Exploration of these primitive bodies is essential in gaining insight into the formation of the Solar system.

- Gases trapped in the rock samples could reveal more about the chemical mixture from the planets formed.

5.3 TiHAN-IIT Hyderabad

It is India's first Test bed for Autonomous Navigation Systems (Terrestrial and Aerial).

Special Features of this Facility include Test Tracks, Emulation of Real-World Scenarios, State of the Art Simulation Technologies, Road Infrastructure, V2X Communication, Drone Runways and Landing Area and many more.

KEY POINTS

- The Department of Science and Technology (DST), Government of India, has sanctioned Rs. 135 crores to IIT Hyderabad under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) to set up a Technology Innovation Hub on Autonomous Navigation and Data Acquisition Systems.

- The Technology Innovation Hub on Autonomous Navigation Systems for Unmanned Aerial Vehicles and Remotely Operated Vehicles at IIT Hyderabad, known as 'TiHAN Foundation' has been incorporated as a Section-8 company by the institute in June 2020.
- TiHAN Foundation is a multi-departmental initiative, including researchers from Electrical, Computer Science, Mechanical and Aerospace, Civil, Mathematics, and Design at IIT Hyderabad with collaboration and support from reputed institutions and industry.

Need of TiHAN

- One major requirement to make unmanned and connected vehicles more acceptable to the consumer society is to demonstrate its performance in real-life scenarios.
- However, it may become dangerous. Especially in terms of safety, to directly use the operational roadway facilities as experimental test tracks for unmanned and connected vehicles.
- In general, both UAV and UGV testing may include crashes and collisions with obstacles, resulting in damage to costly sensors and other components.
- Hence, it is important to test new technologies developed in a safe, controlled environment before deployment.

5.4 Pneumosil

- The Serum Institute of India in collaboration with various other partners like the Bill and Melinda Gates Foundation recently unveiled the first indigenously developed Pneumococcal Vaccine called Pneumosil.
- The vaccine was launched by the Union Health Minister Harsh Vardhan.
- This Indigenous Pneumococcal Conjugate Vaccine will be available in the market under the brand name "Pneumosil" at an affordable price in a single dose (vial and pre-filled syringe) and Multidose (vial) presentations.
- Pneumosil is effective in the prevention of Pneumonia disease.
- The Clinical trials of the vaccine was conducted in Gambia and India.
- Pneumosil is a WHO prequalified vaccine. This means that the vaccine can be procured by both GAVI and United Nations for use in Low Income Countries.
- Pneumococcus is a complex bacterium with more than 90 serotypes. Pneumosil vaccine will protect against ten of these serotypes.

Pneumonia

- It is an Infection that inflames air sacs in one or both lungs, which may fill with fluid.
- With pneumonia, the air sacs may fill with fluid or pus.
- The infection can be life-threatening to anyone, but particularly to infants, children and people over 65.

- Symptoms include a cough with pus, fever, chills and difficulty breathing.

- Antibiotics can treat many forms of pneumonia.

- Some forms of pneumonia can be prevented by vaccines.

- A common cause of bacterial pneumonia is Streptococcus pneumoniae (pneumococcus).

- A conjugate vaccine is a substance that is composed of a polysaccharide antigen fused (conjugated) to a carrier molecule.

- This enhances the stability and the effectiveness of the vaccine.

5.5 Chandrayaan- 2

The Indian Space Research Organization recently released the first set of data from Chandrayaan-2. The data was prepared by Planetary Data System.

It was India's second Moon mission, which was launched on July 22, 2019.

Key points

- The Orbiter, which was injected into a lunar orbit on September 2, 2019, carried eight experiments/payloads, all of which have been performing well and sending data received.

- The public release data archived at the Indian Space Science Data Center (ISSDC) in Byalalu (Bengaluru) is prepared in the standard, globally followed planetary data system-4 (PDS4) format for public release.

- The ISSDC is the nodal center of planetary data archive for planetary missions of ISRO.

About chandrayaan 2

- First space mission to conduct a soft landing on the Moon's south polar region

- First Indian expedition to attempt a soft landing on the lunar surface with home-grown technology

- It is India's first interplanetary mission to be steered by two women: project director M Vanitha and mission director Ritu Karidhal.

- First Indian mission to explore the lunar terrain with home-grown technology.

- Fourth Country ever to soft land on the lunar surface.

Indian Space Science Data Centre

The centre was established by ISRO in 2008. It is responsible for ingestion, archive, processing and dissemination of payload data and also data related to the space missions. It has supported Chandrayaan-1, Mars Orbiter Mission, AstroSat, Youthsat. It is located at the Indian Deep Space Network in Bangalore.

5.6 BBX11 Gene

- The Indian Institute of Science Education and Research (IISER) have identified a gene that facilitates in the greening of plants.

- This gene plays a crucial role in regulating the levels of protochlorophyllide which is an intermediate in the biosynthesis of the green pigment chlorophyll.
- The synthesis of chlorophyll in plants is a lengthy, multi-step process.
- When a seedling emerges from under the soil it must quickly synthesize chlorophyll to start supporting its own growth.
- In order to facilitate the quick synthesis of chlorophyll, plants make a precursor of chlorophyll called 'protochlorophyllide' in the dark, which glows red when blue light is shone on the plant.
- As soon as the plant comes out into the light from under the soil, light-dependent enzymes convert protochlorophyllide to chlorophyll.
- The two proteins oppositely regulate the 'BBX11' gene to maintain optimum levels of 'BBX11'.
- The amount of protochlorophyllide synthesised needs to be proportional to the number of enzymes available to convert them to chlorophyll.
- If there is excess of free protochlorophyllide, then exposure to light converts it into molecules that cause 'photobleaching'.

Advantages of the research

- The study could have tremendous implications in the agriculture sector in tropical countries like India and can help provide leads to optimize plant growth under stressful and rapidly changing climatic conditions.
- Due to the rapidly changing climatic conditions, farmers in several states in India, especially in Maharashtra, are suffering huge losses in crop yields.
- This often leads to severe distress among the farming community as indicated by the high number of farmer suicides in Maharashtra for the past several years.
- Severe drought, high temperature and high light are some of the major reasons for crop failure. Young seedlings emerging out of the soil are extremely sensitive to high irradiance of light.

5.7 CMS-01 satellite

- The Indian Space Research Organisation launched the Communication Satellite CMS-01 onboard the Polar Satellite Launch Vehicle- PSLV-C50.
- The satellite was launched from the SatishDhawan Space Centre in Siharikota, Andhra Pradesh.
- This was the 52nd flight for the PSLV rocket and for the Indian Space Research Organisation, the launch of Communication Satellite CMS-01 was the 77th launch mission from home.
- CMS-01 is a communications satellite envisaged for providing services in extended C Band of the frequency spectrum.
- Its coverage will include the Indian mainland, and the Andaman & Nicobar and Lakshadweep islands, ISRO said.

- The satellite is expected to have a life of more than seven years.

PSLV

- Polar Satellite Launch Vehicle (PSLV) is the third generation launch vehicle of India.

- It is the first Indian launch vehicle to be equipped with liquid stages.

- After its first successful launch in October 1994, PSLV emerged as the reliable and versatile workhorse launch vehicle of India with 39 consecutively successful missions by June 2017.

- During 1994-2017 period, the vehicle has launched 48 Indian satellites and 209 satellites for customers from abroad.

5.8 Plasmodium Ovale

- Plasmodium Ovale, a type of malaria has been identified in a jawan in Kerala.

- Plasmodium Ovale, a type of malaria has been identified in jawan in Kerala.

- The soldier contracted during his posting in Sudan and returned a year back.

- Plasmodium Ovale is endemic.

What is Malaria?

- Malaria is caused by the bite of the female Anopheles mosquito if the mosquito itself is infected with a malarial parasite.

- There are five kinds of malarial parasites — Plasmodium falciparum, Plasmodium vivax (the commonest ones), Plasmodium malariae, 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.

- Malaria is treated with prescription drugs to kill the parasite. Chloroquine is the preferred treatment for any parasite that is sensitive to the drug.

Plasmodium Ovale

- Plasmodium Ovale rarely causes severe illness.

- It is similar to Plasmodium vivax and is not a killer.

- The symptoms include 48 hours of fever, nausea, and headache.

- The treatment is similar to a person who is infected with Plasmodium vivax.

- The 20% of parasites cells are oval shapes and thus is termed as Ovale.

Cases in India

- According to the National Institute of Malaria Research (NIMR), the case in Kerala is an isolated one and there is no local transmission.

- Previously, isolated cases were reported in Gujarat, Kolkata, Odisha, and Delhi.

- Researchers did a rapid antigen test to detect the strain and diagnosed Plasmodium Ovale.

- The parasite may remain in the liver or spleen of the body for a longer time.

5.9 The Havana syndrome

Nearly four years after a mysterious neurological illness started to affect American diplomats in Cuba, China, and other countries, a report has found "directed" microwave radiation to be its "plausible" cause.

What happened?

- In late 2016, US diplomats in Havana reported feeling ill after hearing strange sounds and experiencing odd physical sensations in their hotel rooms or homes.

- The symptoms included nausea, severe headaches, fatigue, dizziness, sleep problems, and hearing loss, which have since come to be known as "Havana Syndrome".

- Cuba had denied any knowledge of the illnesses even though the US had accused it of carrying out "sonic attacks", leading to an increase in tensions.

What causes the 'Havana syndrome'?

- Directed pulsed RF energy appears to be the most plausible mechanism in explaining these cases among those that the committee considered.

- The immediate symptoms that patients reported including sensations of pain and buzzing sound apparently emanated from a particular direction, or occurred in a specific spot in a room.

How is it identified?

- The researchers have examined four possibilities to explain the symptoms — infection, chemicals, psychological factors and microwave energy.

- The experts examined the symptoms of about 40 government employees.

- The report concluded that directed pulsed RF (radio frequency) energy appears to be the most plausible mechanism in explaining these cases among those that the committee considered.

5.10 Great Conjunction

In a rare celestial event, Jupiter and Saturn will be seen very close to each other (conjunction) on 21st December 2020, appearing like one bright star.

Key takeaways

- Jupiter takes less than 12 Earth years to complete an orbit around the sun whereas Saturn takes more than 29 years.

- Approximately, every 20 years they come close to each other while revolving around the sun, but this particular rendezvous will be the closest in nearly 400 years.

- This event is also called heliocentric conjunction as the two gas giants of our solar system will align with the sun.

- Sky gazers were able to spot the planets in the night sky by looking towards the southwest.

- It is the closest alignment of Saturn and Jupiter since 1623, in terms of distance.

- The next time the planets will be this close is 2080.
- They will appear to be close together, however, they will be more than 400 million miles apart.

Jupiter: It is the fifth planet from the Sun and the largest in the Solar System. Jupiter's iconic Great Red Spot is a giant storm bigger than Earth that has raged for hundreds of years.

Saturn: It is the sixth planet from the Sun and the second-largest planet in the solar system. Adorned with thousands of beautiful ringlets, Saturn is unique among the planets.

5.11 DiGiBOXX

Indian Government's policy think tank, NitiAayog recently launched India's own cloud storage and data management platform-DiGiBOXX. DigiBoxx is a storage platform. It is a file sharing and cloud storage platform.

- The service aims to offer both individuals and companies in India with a homegrown, aatmanirbhar cloud storage and file sharing and collaboration platform. All the data stored on the platform will be stored in India, unlike its foreign competitors.
- The DigiBoxx cloud storage service will be initially available on web platforms and Android. The service will soon be launched for iOS app as well.
- It provides 20 GB of free cloud storage and 100 GB free space per month. It charges only 30 rupees per month for such large storages. DigiBoxx is first in its kind under "Make in India, Store in India" policy of India. It is a Software as a Service product that is in line with the National security and data localisation priorities.
- It has a feature called "InstaShare". The feature allows users to share high resolution images, videos, large-size documents, PDFs. When the user deletes a data from the storage space, he can retrieve it for another sixty days. After sixty days, the data gets deleted permanently.

5.12 Ethereum 2.0

The Ethereum is a crypto currency. Recently, it was launched in a faster, cheaper and more environmentally friendly platform, as the upgraded version called 'Ethereum 2.0'.

- Ethereum is a decentralised and open source blockchain platform, which is a growing list of cryptographic blocks. Ether (ETH) is the cryptocurrency token of the Ethereum platform.
- It is the world's second-largest cryptocurrency by market capitalization, only after bitcoin. It is also the world's most actively used blockchain.
- Ethereum was first proposed in 2013 by a Russian- Canadian cryptocurrency researcher and programmer VitalikButerin.
- The largest cryptocurrency 'Bitcoin' works on the principle of Mining, which in turn requires solving complex problems leading to large consumption of electricity.

- This updated Ethereum 2.0 changes this system into 'proof of stake', which links the quantities of ether with the selection as validators.
- Cryptocurrencies cannot be used as a legal currency in India.

Cryptocurrency

It is a specific type of virtual currency that are protected by cryptographic encryption techniques. Some of the popular cryptocurrencies are ripple, Bitcoin, ethereum. There is no Central authority to record the transactions. The cryptocurrencies use technologies such as distributed ledger Technology or blockchain technology to store transaction data.

Regulations in India

- In December 2017, the Government of India clarified that the virtual currencies do not have protection or regulator permission in India.
- In 2018-19 Budget, the Finance Minister Nirmala Sitharaman announced that the Government of India will take all measures to eliminate the use of cryptocurrencies as a part of the payment system in the country.
- In 2018, the Reserve Bank of India notified that the entities operating under it should not deal with cryptocurrency.

5.13 Subhash Chandra Gargcommittee on Cryptocurrency

Inter-Ministerial Committee on Virtual Currencies headed by finance secretary Subhash Chandra Garg has submitted its report to the government. The committee set up by Centre has also proposed a draft bill 'Banning of Cryptocurrency& Regulation of Official Digital Currency Bill, 2019'.

Key recommendations

- Ban on all forms of private cryptocurrencies.
- Impose a fine of up to Rs 25 crore and imprisonment of as much as 10 years for anyone dealing in them.
- RBI and the government may look at the introduction of an official digital currency in the country.
- Establish a specific group by the department of economic affairs with participation by the RBI, department of financial services and the ministry of electronics and information technology (MeitY) for examining and developing an appropriate model of digital currency in India.
- The panel backed use of distributed ledger technology (DLT) or blockchain for selected areas. It has asked the department of economic affairs to take the necessary measures to facilitate the use of DLT in the financial field after identifying its uses.
- It has also suggested the use of DLT to reduce compliance costs for know-your-customer (KYC) requirements.

- Data localisation requirements proposed in the draft Data Protection Bill may need to be applied carefully, including with respect to the storage of critical personal data so as to ensure that there is no adverse impact on Indian firms and Indian consumers who may stand to benefit from DLT-based services.

5.14 Green Propulsion Technology of ISRO

ISRO is developing "Green Propulsion Technology". The technology is being developed for the Human Space Flight Mission of India, Gaganyaan, that is to be launched in December 2021.

- ISRO began the journey of developing Green Propulsion Technology in 2018. ISRO developed an eco-friendly solid propellant GlycidylAzide polymer GAP as fuel and Ammonium Di-Nitramide as oxidiser in 2018.

- ISRO had been carrying out technology demonstration projects involving green propellant combinations such as kerosene, Hydrogen Peroxide, Liquid Oxygen, AND-Glycerol-water, AND-Methanol-water.

- ISRO has begun the testing of Liquid Oxygen, Liquid Hydrogen based propulsion systems for launch vehicles.

- ISRO has already using Green Propulsion Technologies in its mission. However, the technologies are used only in part of the mission. For instance, Liquid Oxygen, Liquid Hydrogen combination of propulsion is used in the Cryogenic upper states of GSLV Mk-III launch vehicle.

- ISRO has developed ISORENE. ISORENE is rocket grade version of kerosene. It is an alternative to conventional Hydrazine rocket fuel.

- ISRO successfully demonstrated the Electric Propulsion system in its South Asia Satellite that was launched in May 2017.

South Asia Satellite

- It is also called the GSAT-9. The satellite is operated by ISRO for SAARC region. The satellite serves Sri Lanka, Nepal, Bhutan, Bangladesh, Afghanistan and Maldives. Pakistan is not included in the programme.

- Pakistan offered technical and monetary support to GSAT-9. However, India rejected the proposal saying it is not willing to develop the satellite on collaborative basis.

- Pakistan maintains its own space programme under SUPARCO (Space and Upper Atmosphere Research Commission).

5.15 First Potential Radio signal from Exo planet

A team of scientists has detected the first possible radio signal from a planet beyond our solar system. The signal is reportedly emanating from an exoplanet system about 51 light-years away from the Earth.

- The scientists uncovered the emission bursts using the Low-Frequency Array (LOFAR), a radio telescope in the Netherlands.
- The emission bursts have been detected from aTauBootes star-system, which reportedly hosts a hot Jupiter-like gaseous giant planet that is very close to its own sun.

Key Highlights

- The study found that only the Tau Bootes exoplanet system exhibited a significant radio signature, which is a unique potential window on the planet's magnetic field.
- The signal has been uncovered from the Tau Bootes system, which contains a binary star system and an exoplanet. As per the researchers, the emission is coming from the planet itself. The researchers will be conducting follow-up observations to confirm the same.
- Astronomers are able to decipher a planet's interior and atmospheric properties along with the physics of star-planet interactions by observing an exoplanet's magnetic field.
- Earth's magnetic field protects it from solar wind dangers thus, keeping the planet safe and habitable. So exoplanets with Earth-like magnetic field may similarly to be able to host life.

Exoplanets

- They are planets outside the solar system.
- Doppler Spectroscopy and Transit Photometry are the best methods to detect Exoplanets.
- Exoplanets are hard to detect as they are close to the stars they are orbiting. Thus, the brightness of the stars prevents from being detected easily.

Doppler Spectroscopy

- It is an indirect method. The method computes the size of the planet by calculating periodic shift in the radial velocity. Also, the change in spectrum of the exoplanets are used to calculate their size.

5.16 Gateway Treaty

- NASA and the Canadian Space Agency recently signed a historic agreement under which Canada is to be a part of the Lunar Gateway Space Station.
- Canada will contribute a new robotic arm called "Canadarm3".
- This agreement is called "Gateway Treaty".

Gateway

It is an outpost orbiting the moon. It provides vital support for long-term and sustainable human return to the lunar surface. It will also act as a staging point for deep space exploration.

Lunar Gateway Space Station

The Lunar Gateway Space Station is about one-sixth of the size of the International Space Station. It is to be built in the lunar orbit. The space station is expected to play a major role in the Artemis Programme of NASA after its launch. The Gateway is to be developed and utilized by international and

commercial partners from CSA (Canadian Space Agency), JAXA (Japanese Aerospace Exploration Agency), European Space Agency.

Space Launch System

It replaced the Constellation Program Ares V launch vehicle programme of 2005. The Constellation Programme of NASA was cancelled. The Constellation Programme aimed to complete the International Space Station and return to moon not late than 2020.

5.17 Green Ammonia

The Government of India is recently inviting bids for Green Ammonia Projects to reduce the import dependence of the country. As per the Union power and new and renewable energy Ministry, the bids for Green Ammonia projects will be conducted by SECI (Solar Energy Corp. of India Ltd).

What is Green Ammonia?

Green ammonia refers to ammonia, which has been produced through a process that is 100% renewable and carbon-free. One way of making Green Ammonia is by using the hydrogen from water electrolysis and nitrogen separated from air. These two elements are then fed into the Haber process. In the process, nitrogen and hydrogen react together in high pressure and temperature to produce Ammonia.

5.18 Planet Nine

- Planet Nine is a hypothetical planet that is said to be 10 times the size of the Earth and orbits far beyond Neptune a highly eccentric orbit around the Sun.
- It was first proposed in 2012 to explain perturbations in the orbits of draft planets beyond Neptune's orbit, which are called Kuiper Belt objects. Its existence is yet to be confirmed.
- Recently, an exoplanet 336 light years from the Earth was found to have Planet Nine-like characteristics in its star system. It has been named HD106906 b.

About Planet nine

- Hidden in the outer Solar System lurks a presence, believed to be a gigantic planet orbiting the same Sun and casting a visible influence on the behaviour of a number of other objects.
- Although it has not yet been spotted, this behaviour would be difficult to explain if such a presence did not exist.
- It is popularly referred to as Planet Nine, the presumed ninth planet of the Solar System, and occasionally as Planet X.
- Over the years, scientists have sought to explain several puzzling aspects of the Solar System by attributing these to the influence of Planet Nine.
- In a 2016, paper made out a case for Planet Nine's existence by arguing that it could be responsible for the peculiar alignment of icy objects on the outskirts of the Solar System.

5.19 Facial Recognition Technology

- It is a **biometric technology** that uses distinctive features of the face to **identify and distinguish** an individual. Over a period of almost 6 decades, it has evolved in many ways- from looking at 3D contours of a face to recognizing skin patterns.

Working:

- The facial recognition system works primarily by capturing the face & its features through the camera and then using various kinds of software to reconstruct those features.
- The captured face along with its features is stored into a database, which can be integrated with any kind of software that may be used for security purposes, banking services, etc.
- In the **Automated Facial Recognition System (AFRS)**, the large database (containing photos and videos of peoples' faces) is used to **match and identify** the person. Image of an unidentified person, taken from CCTV footage, is compared to the existing database using **Artificial Intelligence** technology, for pattern-finding and matching.

Uses

- **Authentication:** It is used for **identification and authentication** purposes with a success rate of almost 75%.
- For instance, the **NCRB's Crime and Criminal Tracking Network & Systems (CCTNS)** managing crime data for police, uses automated facial recognition to identify criminals, missing people, and unidentified dead bodies, as well as for "crime prevention".
- The project is aimed at being compatible with other biometrics such as iris and fingerprints. The integration of fingerprint database, face recognition software and iris scans will massively boost the police department's crime investigation capabilities.
- **Force Multiplier:** In India, where there are just 144 constables per 1 lakh citizens, this can act as a force multiplier. It neither requires too much manpower nor regular upgradation. Hence, this technology coupled with the present manpower in place can act as a game-changer.
- It is increasingly being used for everything from unlocking of mobile phones to validating the identity, from auto-tagging of digital photos to finding missing persons, and from targeted advertising to law enforcement.
- However, China's reported use of facial recognition technologies for surveillance in the **Xinjiang province** opens the possibility of its abuse which becomes problematic in the absence of privacy and data security laws.

Challenges

- **Infrastructural Costs:** Technologies like Artificial Intelligence and **Big Data** are **costly** to implement. The size of stored information is extremely large and requires huge **network & data storage facilities,** which are currently not available in India. Currently, to store the government data from the National Informatics Centre (NIC) and other agencies, international cloud servers are used.

- **Image Collection:** The sources from which images will be collected to create a repository/database needs to be known. Certain questions also need to be answered:

- Will the information be collected from social media profiles like- Twitter, Facebook, Instagram, etc.?

- What kind of relationship would it have with the private entities and security agencies?

- How would that relationship reflect in the terms and conditions, to be fairly transparent, as these images would be made available to enforcement agencies?

- **Security of the Database:** In today's world of cybercrime, there is a dire need to put appropriate safeguards in place in order to ensure the **integrity** of the repository/database, so that it doesn't leak out the information and is not privatized or monetized.

- Also, International & domestic **accessibility interests** need to be properly addressed.

- **Required Expertise:** The collected data from social media profiles where anybody can put anybody's image, puts to risk the authenticity of the data. Hence, experts are needed to verify such details before storing them who should be provided proper training to protect & avoid abuse and misuse of the collected data & database.

- **Reliability & Authenticity:** As the data collected may be used in the court of law during the course of a criminal trial, the **reliability and the admissibility** of the data along with standards and procedure followed would be taken into consideration. Hence, the **authenticity** of the data is crucial.

- **Right to Privacy:** Government although plans to address the **question of privacy** through the legal framework like **data privacy regime,** but keeping in mind the objectives it aims to achieve with the use of such technology, it comes into conflict with one another.

- In the absence of data protection laws, Indian citizens become more vulnerable to privacy abuses. As it is sensitive data, it has tremendous potential of being misused.

- Hence, the constitutional mandate of right to privacy needs to be safeguarded along with the nature of technology, addressing the fears of invasion & surveillance.

- **Inherent Challenges:** Over the time, the face may have different-different facets, for example, somebody has grown a beard, or the age has changed from the last taken photo, or somebody might

have covered the face so as to escape from getting captured in the CCTVs. This becomes one of the challenging tasks to overcome.

- The notion that sophisticated technology means greater efficiency needs to be critically analysed. A deliberative approach will benefit Indian law enforcement agencies, as police departments around the world are currently learning that the technology is not as useful in practice as it seems in theory.

- The well-planned use of such nascent technology is a probable solution for a country like India, provided there are sufficient safeguards to address its inherent concerns including the issue of privacy.

5.20 Global Alliance for Vaccines and Immunisation (GAVI)

Union Health Minister Harsh Vardhan has been nominated by the Global Alliance for Vaccines and Immunisation (GAVI) as a member on the GAVI Board.

Dr. Harsh Vardhan will be representing **the South East Area Regional Office (SEARO)/ Western Pacific Regional Office (WPRO) constituency** on the GAVI Board.

GAVI Board:

1. The GAVI Board is responsible for strategic direction and policymaking, oversees the operations of the Vaccine Alliance and monitors programme implementation.

2. With membership drawn from a range of partner organisations, as well as experts from the private sector, the Board provides a forum for balanced strategic decision making, innovation and partner collaboration.

What is GAVI?

Created in 2000, Gavi is an international organisation – a global Vaccine Alliance, bringing together **public and private sectors** with the shared goal of creating equal access to new and underused vaccines for children living in the world's poorest countries.

Members:

Gavi brings together developing country and donor governments, the World Health Organization, UNICEF, the World Bank, the vaccine industry in both industrialised and developing countries, research and technical agencies, civil society, the Bill & Melinda Gates Foundation and other private philanthropists.

Main activities:

1. GAVI's strategy supports its mission to save children's lives and protect people's health by increasing access to immunisation in poor countries.

2. It contributes to achieving the United Nations' Millennium Development Goals by focusing on performance, outcomes and results.

3. Its partners provide funding for vaccines and intellectual resources for care advancement.

4. They contribute, also, to strengthening the capacity of the health system to deliver immunisation and other health services in a sustainable manner.

5.21 Mock Egg

Recently, a team of scientists from IIT Delhi won an **innovation contest (Innovate 4 SDG)** organised by the **United Nation Development Programme (UNDP) Accelerator Lab India** for their innovation of a **"plant based mock egg".**

The mock egg has been developed from very simple farm-based crop proteins, which not only looks and tastes like egg but also very close in nutritional profile to a poultry egg.

Significance:

1. The development of the mock egg meets the protein needs of the diet-specific, health conscious, vegan and vegetarian people, claims IIT-Delhi.

2. This innovation addresses **SDG 2 and 3 (zero hunger and good health and well-being).**

- The team has also developed **meat analogues for chicken and fish from plant sources using fruits and vegetables.**

- The plant based textured foods which resemble egg, fish and chicken have been developed with an aim **to address the longstanding battle for malnutrition and clean protein food for people.**

5.22 Shigella Infection

Kozhikode State Health Department said that six people had been confirmed as having the infection and over 30 people had been treated as suspected cases.

Shigellosis

Shigella is a genus of bacteria that causes an infection called Shigellosis

- It is the second leading cause of bacterial diarrhea worldwide and the third leading cause of death in children less than 5 years old.

Is Shigellosis a common infection? How many people are infected annually?

- The annual number of shigellosis episodes throughout the world is estimated to be 164.7 million.

- About 69% of all episodes and 61% of all deaths are attributable to shigellosis involving children less than 5 years of age.

- A multi-centric study from six Asian countries (Bangladesh, Sri Lanka, Maldives, Nepal, Bhutan, and Myanmar) estimated Shigella as the causative agent in 5% of the diarrhoeal cases.

- Among children less than 5 years of age, the incidence was 13 new cases per 1,000 children per year.

- Reports of Shigellosis from various parts of India have shown an overall isolation rate varying from 3-6% of all stool samples with diarrhea.

Can it be fatal?

- As per reports, an **estimated annual mortality of 35,000–40,000** is noted globally in both **under-five and older-than-five age groups.**

- The availability of age-specific estimates of case fatality due to Shigellosis is limited.

How do protect from Shigella?

- Shigella is generally **transmitted through contaminated food or water, or through person-to-person contact.**

- Shigellosis is primarily a **disease of poor and crowded communities** that do not have adequate sanitation or safe water.

- Handwashing is said to reduce shigella transmission by 70%.

- Recommended public health control measures are exclusion of ill people with shigellosis from work, food preparation, and childcare.

- Due to the increasing rate of multidrug resistance, in particular resistance to fluoroquinolone in Asian and African regions, this has been classified as a medium priority for research and development of new and effective antibiotic treatments by the **WHO Priority Pathogens List of antibiotic-resistant bacteria.**

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