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G.S PAPER I

1. HISTORY

1.1   Dholavira - UNESCO World Heritage Site

Why in news?

Dholavira, the archaeological site of a Harappan-era city, has recently received the UNESCO world heritage site tag.

What are the distinct features of the site?

- Dholavira is the 5th largest metropolis of IVC.

- It comes after Mohen-jo-Daro, Ganweriwala and Harappa in Pakistan and Rakhigarhi in Haryana of India.

- The site has a fortified citadel, a middle town and a lower town.

- There are walls made of sandstone or limestone instead of mud bricks in many other Harappan sites.

- There are a cascading series of water reservoirs, outer fortification, two multi-purpose grounds, and nine gates with unique designs.

- The site also has a funerary architecture featuring tumulus - hemispherical structures like the Buddhist Stupas.

- Unlike graves at other IVC sites, no mortal remains of humans have been discovered at Dholavira.

- Memorials that contain no bones or ashes but offerings of precious stones, etc. add a new dimension to the personality of the Harappans.

What were the key economic activities?

- Remains of a copper smelter indicate that Harappans in Dholavira knew metallurgy.

- The traders of Dholavira might have sourced copper ore from present-day Rajasthan, and Oman and UAE, and exported the finished products.

- Dholavira also used to export timber and jewellery made of shells and semi-precious stones, like agate.

- Such beads peculiar to the Harappan workmanship have been found in the royal graves of Mesopotamia, indicating trade with the Mesopotamians.

What led to its fall?

- Its decline also coincided with the collapse of Mesopotamia, indicating the integration of economies.

- Harappans, who were maritime people, lost a huge market.

- The local mining, manufacturing, marketing and export businesses got affected once Mesopotamia fell.

- From 2000 BC, Dholavira was affected by aridity due to climate change and rivers like Saraswati drying up.

- Because of a drought-like situation, people started migrating towards the Ganges valley.

- Or, they moved towards south Gujarat and further beyond in Maharashtra.

- [In those times, the Great Rann of Kutch, which surrounds the Khadir island on which Dholavira is located, used to be navigable.

- But the sea receded gradually and the Rann became a mudflat.]

Dholavira Site

- The Indus Valley Civilisation (IVC) city is located on a hillock near present-day Dholavira in Kutch district.

- It was discovered in 1968 by archaeologist Jagat Pati Joshi.

- The site's excavation between 1990 & 2005 under the supervision of archaeologist Ravindra Singh Bisht.

- It was a commercial and manufacturing hub for about 1,500 years before its decline and eventual ruin in 1500 BC.

- Dholavira became the 4th site from Gujarat, 40th from India and 1st IVC site to make it to the UNESCO list.

- UNESCO listing was possible because the site was found free from any kind of encroachment, a rarity in India.

What are the other Harappan sites in Gujarat?

- Before Dholavira's excavation, Lothalwas the most prominent site of IVC in Gujarat.

- Lothal is on the bank of Sabarmati in Ahmedabad district.

- Excavated between 1955 and 1960, it was discovered to be an important port city of the ancient civilisation, with structures made of mud bricks.

- From a graveyard in Lothal, 21 human skeletons were found.

- Foundries for making copperware were also discovered.

- Ornaments made of semi-precious stones, gold etc. were also found from the site.

- Besides Lothal, Rangpur on the bank of Bhadar river in Surendranagar district was the first Harappan site in the state to be excavated.

- Rojdi in Rajkot district, Prabhas in Gir Somnath district, Lakhabaval in Jamnagar, and Deshalpar in Kutch are among other Harappan sites in the state.

G.S PAPER II

2. POLITY

2.1 Ladakh's Current Status

What is the issue?

- When Jammu and Kashmir was bifurcated into two Union Territories on August 5, 2019, Ladakh was seen welcoming the reorganisation.

- But various demands and concerns have been raised from its two districts, Leh and Kargil, over the last two years.

What is the government's response?

- The government appears to be paying more attention to the concerns now, after two years of bifurcation.

- This happens parallel to the Centre's outreach to the Jammu and Kashmir political leadership.

- Reportedly, a committee under Minister of State for Home will seek to address these demands from Ladakh.

- If the committee with planned representation from Leh and Kargil is set up, it would enable leaders from both the districts to work out a common negotiating front.

What are the different concerns in Leh and Kargil?

- **Kargil** - Of Ladakh's two districts, the August 2019 changes were immediately opposed by the people of Kargil.

- The people of Kargil see themselves as a minority in Buddhist majority Ladakh.

- So, the leaders of the majority Shia population in Kargil demanded that the district should remain part of J&K.

- They also demanded that special status be restored.

- This was to safeguard the rights of Kargil people over their land and employment opportunities.

- **Leh** - Opposition from Leh came later.

- Leh believed that it was being marginalised in the larger state of J&K.

- So, a UT for Ladakh had been a long-standing demand in Buddhist majority Leh.

- But what Leh leaders did not bargain for was the complete loss of legislative powers.

- Earlier, Leh and Kargil each sent four representatives to the J&K legislature.

- After the changes, they were down to one legislator - their sole MP, and with all powers vested in the UT bureaucracy.
- Unlike the UT of J&K, Ladakh was a UT without an assembly.
- So, the Ladakh districts fear that alienation of land, loss of identity, culture, language, and change in demography would follow their political disempowerment.

What about the Hill Development Councils?

- Leh and Kargil have separate Autonomous Hill Development Councils (AHDCs).
- These were set up under the Ladakh Autonomous Hill Development Councils Act, 1997.
- The councils are elected.
- However, the AHDCs have no legislative powers.
- They have executive powers over the allotment, use and occupation of land vested in them by the Centre.
- They also have the powers to collect some local taxes, such as parking fees, taxes on shops etc.
- But the real powers are now wielded by the UT administration.
- Worryingly, the UT administration is seen as even more remote than the erstwhile state government of J&K.

What is the recent demand in this regard?

- Various groups in Ladakh are demanding for an autonomous hill council under the Sixth Schedule.
- The Sixth Schedule is a provision of Article 224(a) of the Constitution.
- It was originally meant for the creation of autonomous tribal regions in Assam, Meghalaya, Mizoram and Tripura.
- Notably, hill councils under this provision will have legislative powers.
- **Evolving demands** - There is no progress on Leh's demand for Sixth Schedule protections.
- So, the Leh leadership has now upped its demandsasking for a Union Territory with an elected Assembly.
- Meanwhile, another delegation demanded full statehood to Ladakh, as well as restoration of special status with Article 35 and 370 of the Constitution.
- Other issues include protections for language, culture, land and jobs.
- Another long-standing demand is the route between Kargil and Skardu in territory under Pakistan in Gilgit-Baltistan.

2.2   Section 66A of the IT Act

Why in news?

Section 66A of the Information Technology Act, 2000, scrapped in 2015 by the Supreme Court, is still being used by law enforcement agencies of various states.

What is Section 66A about?

- Sec66A of the IT Act relates to sending messages through computer or any other communication device like a mobile phone or a tablet.
- Sending messages that were "offensive" or "menacing" or for the purposes of causing annoyance, inconvenience, etc. was made a criminal offence.
- The police had the discretion to decide upon such cases and were empowered to make arrests.
- The conviction could fetch a maximum of 3 years in jail.
- In its landmark judgment in Shreya Singhal (2015), the Supreme Court struck down Section 66A.
- It called the provision "open-ended and unconstitutionally vague."
- The provision upset the balance between the exercise of the free speech right and the imposition of reasonable restrictions on it.

- The judgement thus expanded the boundaries of free speech to the Internet.

What is the recent case on?

- A petition by the People's Union for Civil Liberties (PUCL) came up for hearing.

- The invalidated Sec 66A is being used by the police to register cases based on complaints.

- Police headquarters and prosecutors in various States had not disseminated the effect of the Court ruling among officers manning police stations.

- There were also instances of courts framing charges under Section 66A even after lawyers had cited the 2015 judgment.

- Possibly, police officers may not be aware of the judgment.

- But it cannot be ruled out that the section was also being invoked deliberately as a tool of harassment.

- In January 2019, too, the Court's attention was drawn to the same problem.

- The PUCL has said as many as 745 cases are still pending in district courts in 11 States.

- The Supreme Court termed the continued use of an invalid law as "a shocking state of affairs" and sought a response from the Centre.

What should be done?

- Ignorance of the law is no excuse for the citizen.

- It must equally be no excuse for police officers who include invalidated sections in FIRs.

- The current hearing may result in directions to States and the police, as well as the court registries.

- There has to be appropriate advisories to both station-house officers and magistrates.

- Police chiefs and the directorates of prosecution must begin a process of conveying to the lower courts and investigators all important judgments from time to time.

2.3 New Union Ministry of Cooperation

Why in news?

As part of the latest Cabinet reshuffle, the government announced the formation of a separate Union Ministry of Cooperation, a subject that was till date looked after by the Ministry of Agriculture.

What is the cooperative movement?

- Simply, cooperatives are organisations formed at the grassroots level by people to harness the power of collective bargaining towards a common goal.

- In agriculture, cooperative dairies, sugar mills, spinning mills etc are formed.

- Village-level primary agricultural credit societies (PACSs) formed by farmer associations are the best example of grassroots-level credit flow.

- There are also cooperative marketing societies in rural areas and cooperative housing societies in urban areas.

- As market conditions are evolving, cooperatives in States such as Kerala have got into complex operations: running IT parks and medical colleges.

- More avenues for expansion, such as insurance, remain untapped and the regulatory regime must evolve in step.

- Though not uniform across India, cooperatives have made significant contributions in poverty alleviation, food security, management of natural resources and the environment.

How are cooperative societies governed?

- The legal architecture of the sector began evolving since 1904 under colonial rule.

- In 2002, the Multi State Cooperative Societies Act was passed, taking into account the challenges arising out of liberalisation.

- Agriculture and cooperation are in the state list.

- So, a majority of the cooperative societies are governed by laws in their respective states.
- The MultiState Cooperative Societies Act, 2002 allowed for registration of societies with operations in more than one state.
- The Central Registrar of Societies is their controlling authority. But on the ground, the State Registrar takes actions on his/her behalf.

What is the need for a new Ministry?

- **Policy focus** - Alongside the state and the market, cooperatives play a vital role in the country's development.
- But they are seldom the focus of policy planning.
- The creation of a new Union Ministry will redeem the cooperatives sector from this negligence.
- **Management** - Despite regulatory oversight by the RBI and States, there is considerable autonomy for the sector which is often misused.
- Consequently, the cooperatives sector has become an instrument of patronage and pilferage.
- Mismanagement and corruption destroyed the sector in some States.
- Cooperatives are also effective in mediating politics at the local level, outside of the parliamentary system.
- It is thus essential to restore the importance of the cooperative societies for their intended purposes.
- **Funding** - The cooperative structure has managed to flourish and make an impact only in a handful of states.
- These include states like Maharashtra, Gujarat, Karnataka etc.
- [Cooperative institutions get capital from the Centre, either as equity or as working capital, for which the state governments stand guarantee.
- This formula had seen most of the funds coming to a few states while other states failed to keep up.]
- Over the years, the cooperative sector has witnessed drying out of funding.
- Under the new Ministry, the cooperative movement would get the required financial and legal power to penetrate into other states also.

2.4 Judicial Review on Sedition Law / Sec 124A of IPC

Why in news?

The Supreme Court indicated its intention to reconsider the sedition provision - Section 124A of the Indian Penal Code (IPC).

What is Section 124A?

- The Sedition law, or Section 124A, was inserted into the IPC in 1870.
- The colonial law was derived from the British Sedition Act of 1661.
- Under it, whoever brings or attempts to bring hatred or contempt, or excites or attempts to excite disaffection towards the Government established by law in India shall be punished.
- The punishment may involve imprisonment of 3 years to life term, to which a fine may be added.

What are the Court's recent remarks?

- Sedition is a colonial law. It suppresses freedoms.It was used against Mahatma Gandhi, Tilak.
- The CJI said the sedition provision was prone to misuse by the government.
- Central and State law enforcement agencies are using the sedition law arbitrarily.
- The conviction rate under the Section is very low, indicating the misuse of power by executive agencies.
- They use it to silence dissent, muffle free expression and for denying bail to incarcerated activists, journalists, students and civil society members.
- The Court thus asked,"Is this law necessary after 75 years of Independence?"

What is the significance?

- It is often argued that the misuse of a law alone does not render it invalid.

- But there is a special case to strike down Section 124A because of its inherent potential for misuse.

- There is a pattern of behaviour among all regimes that indicate a tendency to invoke Sec 124A without examining its applicability to the facts of any case.

- Recent cases show that sedition is used for three main political reasons:

    i.   to suppress criticism and protests against particular policies and projects of the government

    ii.   to criminalise dissenting opinion from human rights defenders, lawyers, activists and journalists

    iii. to settle political scores, sometimes with communal hues

- Given these, the Court has sent a clear signal that Section 124A of the IPC may have passed its time.

- It has made it clear that it was sensitive to the public demand to judicially review the nature ofuse of the sedition provision.

- This has opened the floor for debate and introspection on the court's own judgment in 1962, in the Kedar Nath case, which upheld Section 124A.

2.5   Kanwar Yatra - Supreme Court Intervention

Why in news?

- The Supreme Court asked the Uttar Pradesh government to either withdraw the decision to allow the Kanwar yatra or invite an order from the court, given the fear of a third Covid-19 wave.

- Uttar Pradesh government cancelled the Yatra after the Supreme Court intervention.

What is the case about?

- In the Kanwar yatra, the Kanwarias, devotees of Shiva, make a pilgrimage to collect water from the Ganga.

- It was not held last year (2020) due to COVID-19.

- The Uttarakhand government had earlier cancelled the yatra in its territory.

- It rightly heeded to warnings by experts that such large gatherings posed a major riskto public health, amidst fears of a third wave.

- But Uttar Pradesh CM Yogi Adityanath appeared keen that the pilgrimage be held this year (2021).

- The Court was disturbed by reports of the plan to conduct the yatra, resulting in the initiation of suo motu proceedings.

What were the Court's remarks?

- The Court disagreed with even the idea of a 'symbolic yatra' in deference to religious sentiment.

- It emphasised, "the health of the citizenry of India and their right to 'life' are paramount".

- It said that all other sentiments, albeit religious, were subservient to this most basic fundamental right.

- This is a matter which concerns every one of us as citizens of India, and goes to the very heart of Article 21 of the Constitution of India.

Why is the case significant?

- The organisation of the Kumbh Mela earlier in 2021 was seen as responsible for a surge in infections in the run-up to the disastrous second wave.

- There may be a case for lockdown relaxations aimed at economic revival and restoration of normality in most parts of the country.

- But there cannot be justifications for large gatherings in the name of religion.

- Clearly, right to life and safety takes precedence over religious rights.

- Any relaxation after a long spell of severe curbs will have to be based on a scientific assessment of the number of daily infections, the rate of positivity and signs of fall in cases.

2.6   Krishna & Godavari River Management Boards

Why in news?

The Centre (Union Ministry of Jal Shakti) has notified the jurisdiction of Krishna and Godavari River Management Boards (KRMB and GRMB).

What is the long-drawn dispute between A.P. and Telangana?

- The dispute between the two States over project works and hydel generation at Srisailam, Nagarjunsagar and Pulichintals reservoirs was going on for long.
- Andhra Pradesh has been demanding notification of the boards' purview for long.
- But Telangana has been opposing it.
- It feels that handing over projects' operation without clarity on the States' share of water would be meaningless.
- Andhra Pradesh has been proposing a few projects, including a lift irrigation scheme for Rayalaseema.
- In turn, Telangana has been coming up with half-a-dozen projects of its own.
- It has been 7 years since the boards were constituted under the provisions of the Andhra Pradesh Reorganisation Act, 2014.
- The Centre has only notified now the jurisdiction of Krishna and Godavari River Management Boards (KRMB and GRMB).

What does this mean?

- The notification transfers to the Boards the operation of all projects in the two river basins in A.P. and Telangana effective from October 14, 2021.
- The operations include the generation of hydel power.
- The two river boards can now administer, regulate, operate and maintain 36 projects in the Krishna Basin and 71 in the Godavari.
- The Boards are empowered to operate the headworks of barrages, dams, reservoirs, regulating structures, part of canal network, transmission lines and the power houses at the projects.
- The notification authorises the Central Industrial Security Force (CISF) to assist the KRMB in the day-to-day management.
- This applies to the specified projects and other works related to security assigned by the KRMB.

What are the challenges?

- The Centre's efforts are aimed at defusing the increasing tension between the two States over water sharing and power generation.
- But implementation is bound to face challenges as regulation of water is going to be a tough job.
- This is especially given the absence of clarity on water share of the two States as also the project-wise allocation.
- [Project-wise supply for irrigation and drinking needs as also hydel generation at projects]

2.7   SC Verdict on 97th Constitutional Amendment

Why in news?

The Supreme Court in a majority verdict quashedPart IX B of the Constitution on cooperatives inserted by 97th constitutional amendment.

What is the 97th constitutional amendment?

- The 97th Constitutional Amendment Act dealt with issues related to effective management of co-operative societies in the country.

- It was passed by the Parliament in 2011 and had come into effect from 2012.

- The change in the Constitution has amended Article 19(1)(c).

- The Act gave protection to the cooperatives and inserted Article 43 B and Part IX B, relating to them.

What is the recent case?

- Part IXB delineated the jurisdictions of what State legislation on cooperative societies ought to contain.

- This applied to provisions on -
    i. the maximum number of directors in each society
    ii. reservation of seats for SCs, or STs, and women
    iii. the duration of the terms of elected members, among others

- The question before the Court was whether the 97th Amendment impacted the legislative domain of the State Legislatures.

- If so, then it would require ratification by half of the states' legislatures, in addition to the required two-thirds majority in Parliament.

- The Gujarat High Court had found the amendment invalid for want of such ratification.

- It struck down certain provisions of the amendment.

- It held that the Parliament could not enact laws with regard to cooperative societies as it was a State subject.

- The Centre challenged this 2013 decision of the Gujarat High Court in the Supreme Court.

- It believed that the subject of 'cooperative societies' in the State List was not altered in any way by the 97th Amendment.

- It only outlined the guidelines on any law on cooperatives that the State Assemblies may enact.

- The provision does not denude the States of its power to enact laws with regard to cooperatives.

- So, it felt the ratification by states was not necessary.

What is the SC verdict?

- The Supreme Court, by a 2:1 majority, upheld the Gujarat HC judgment holding the amendment invalid.

- But this is only in relation to cooperatives under the States.

- The elaborate amendment would hold good for multi-State cooperative societies, on which Parliament was competent to enact laws.

- So, the Supreme Court upheld the validity of the 97th constitutional amendment.

- It has however struck down part IX B of the Constitution.

What does this imply?

- Significantly, the 97th Constitutional Amendment infused autonomy, democratic functioning and professional management into the cooperatives.

- But the recent verdictimplies that even well-intentioned efforts towards reforms cannot be at the cost of the quasi-federal principles.

- In other words, reforms in cooperative sector should not be at the cost of federal principles.

- The ratification requirement will apply if there is any attempt to constrain the State legislatures in any way.

- In the absence of States' ratification, the amendment that sought to prescribe the outlines of State laws on a State subject becomes invalid.

- The judgment may also mean that the concern expressed, that the formation of a new Ministry of Cooperation would affect federal principles, could be true.

- Having said all these, undeniably, the cooperative movement needs reform and revitalisation, (within constitutional parameters).

3. GOVERNMENT ACTS & POLICIES

3.1 Health Data Management Policy

What is the issue?

The CoWin portal for COVID-19 vaccines has come under criticism due to the absence of a privacy policy.

What is the Health Data Management Policy?

- CoWin follows the privacy policy of the National Digital Health Mission (NDHM) - the Health Data Management Policy.
- Other digital health initiatives, such as telemedicine, hospital management systems and insurance claims management, are also tied to this Policy.
- The Policy seeks to develop a national health information system.
- It facilitates the creation of Unique Health Identification (UHID) for individuals and healthcare providers.
- It also facilitates the collection, storage, processing and sharing of personal health information, as electronic health records (EHRs).
- Every individual's UHID is linked to his or her EHR.

What are the shortcomings?

- **Privacy** - Despite the benefits, digitisation entails significant risks to privacy, confidentiality and security of personal health data.
- The Policy aims to mitigate these risks, through two guiding principles:
    1. "security and privacy by design"
    2. individual autonomy over personal health data
- But fundamental 'design flaws' may end up increasing instances of personal health data breaches.
- **Legal backup** - The Supreme Court, in Puttaswamy case, held that the right to informational privacy is a fundamental right.
- Any encroachment on this must be supported by law.
- It also calls for enacting a comprehensive data protection legislation.
- Contrary to this, the digitisation process being rolled out under the NDHM Policy is not supported by any law.
- **Regulation** - Setting up a regulatory authority entails a law that defines the boundaries within which it can function.
- It should also ensure independence from government interference and accountability to Parliament.
- But the Policy itself establishes the NDHM to function like a regulator.
- It authorises the NDHM to performlegislative, executive and quasi-judicial functions and define its own governance structure.

What are the risks involved?

- There is a possibility of secondary use of digital health data for research and policy planningby private firms.
- Anonymised datasets can be easily de-anonymised to link back to personally identifiable information, risking individual privacy.
- The policy also does not stipulate 'data masking' available to individuals to ensure confidentiality.
- [Data masking - technique to hide specific sensitive health information in EHRs accessible even to health care providers only with the specific consent of the individual.]

- The Policy also does not limit the use of aggregate health data to public health purposes.

- Without strict purpose limitation, private firms may use people's health data to enhance profits.

- The Policy also does not require reporting of personal data breaches to affected individuals.

- The guiding principle of individual autonomy is invoked through 'informed consent' for collecting and processing personal health data.

- The Policy mandates informed consent only prior to the collection of data.

- It applies in case of any change in the privacy policy or in relation to any new or unidentified purpose.

- This suggests that one-time consent for one or more broad purposes may be sufficient.

- But with this, individuals may ultimately end up with little or no control over their data.

3.2   Government of NCT of Delhi Act, 2021

What is the issue?

- The Government of National Capital Territory of Delhi (GNCTD)(Amendment) Act, 2021 was passed recently.

- It has been extensively criticised as a retrograde law that backtracks on representative democracy.

What are the contentious provisions?

- The GNCTD (Amendment) Act prohibits the exercise of free speech in the Assembly and its committees.

- It reduces the autonomy of the elected government.

- Also, it vests several crucial powers in the unelected Lieutenant Governor (LG).

- The Act thus undermines the functioning of Delhi's Legislative Assembly, which has been sought to be reduced to a lame duck.

- The Assembly has no more functional independence worth its name.

- Its standards of procedure and conduct of business have been firmly tethered to that of the Lok Sabha.

- It deprives Delhi's elected MLAs of an effective say in how their Assembly should be run.

- The Act also prohibits the Assembly from making any rule enabling either itself or its committees -
    i.   to consider any issue concerned with "the day-to-day administration of the capital" (or)
    ii.   to "conduct inquiries in relation to administrative decisions"

- Also, any rule made before the Amendment Act came into effect that runs counter to this formulation shall be void.

How was it earlier?

- The Government of National Capital Territory of Delhi (GNCTD) Act was originally enacted in 1992.

- Under it, the Legislative Assembly was given the power to regulate its own procedure.

- It could as well regulate the conduct of its business.

- This was subject to very limited exceptions.

- The exceptions concerned financial matters and scrutiny over the LG's discretionary role.

- The Act thus sought to realise a delicate balance reflecting Delhi's unique constitutional position.

- [It was neither full state nor a centrally governed Union Territory.]

What are the implications of the amendments?

- The most dangerous impact could be to the exercise of free speech in the Assembly and its committees.

- The Assembly might fall short of performing its most basic legislative function of holding the executive to account.

- Because, it cannot guarantee itself the ability to freely discuss the happenings of the capitaland articulate the concerns of the electorate.

- **Committees** - The deliberations and inputs of the Assembly committees often pave the way for intelligent legislative action.

- It would be impossible for committees to perform this function without the power to conduct inquiries.

- This negates the ability of committees to function effectively as the Assembly's advisors and agents.

- The quality of legislative work emanating from the Assembly is thus ultimately bound to suffer.

3.3   U.P.'s New Population Policy

Why in news?

- Uttar Pradesh Chief Minister Yogi Adityanath launched the State's population policy for 2021-2030.

- Also, draft of the Uttar Pradesh Population (Control, Stabilisation and Welfare) Bill, 2021 was published earlier.

What are the key features of the policy?

- The new policy aims to achieve the following targets:

    i.   decrease the Total Fertility Rate from 2.7 to 2.1 by 2026 and 1.7 by 2030

    ii.   increase Modern Contraceptive Prevalence Rate from 31.7 to 45 by 2026 and to 52 by 2030

    iii. increase male methods of contraception use from 10.8 to 15.1 by 2026 and to 16.4 by 2030

    iv.   decrease Maternal Mortality Rate from 197 to 150 to 98

    v.   decrease Infant Mortality Rate from 43 to 32 to 22

    vi.   decrease Under 5 Infant Mortality Rate from 47 to 35 to 25

- The state would attempt to maintain a balance of population among the various communities.

- Awareness and extensive programmes would be held among communities, cadres and geographical areas that have a higher fertility rate.

What does the draft bill propose?

- Under the draft bill, a two-child norm would be implemented and promoted.

- A person who will have more than two children after the law comes into force would be debarred from the benefits of government welfare schemes.

- Ration card units would be limited to four.

- The person will be barred from contesting elections to local authority or any body of the local self-government.

- Such persons would also become ineligible to apply for government jobs under the State government.

- They will be barred from promotion in government services and will not receive any kind of subsidy.

- The provisions would come into force one year after the date of publication of the gazette.

- The draft also proposes to incentivise one-child and two-child families.

- These include perks in government schemes, rebates in taxes and loans, and cash awards if family planning is done, among other sops.

What are the concerns?

- While the above intention is welcome, the government fails to take affirmative steps in that direction.

- It instead seems to have taken the path of a mixture of incentives and penalties.

- It is approaching the socio-economic issue as a demographic one.

- The incentives/disincentives approach has been denounced in the past by the National Human Rights Commission too.

- Also, empirical studies of coercive measures have shown such policies' discrimination against the poor and the marginalised.
- Studies have also found no discernible effect of such measures on population control.

3.4 Juvenile Justice (Care and Protection of Children) Amendment Bill, 2021

Why in news?

- The Juvenile Justice (Care and Protection of Children) Amendment Bill, 2021, was passed in Rajya Sabha. It was earlier passed in the Lok Sabha.
- The Bill seeks to amend the Juvenile Justice Act, 2015.

What was the 2015 Act?

- The 2015 Act replaced the Juvenile Delinquency Law and the Juvenile Justice (Care and Protection of Children) Act 2000.
- **Crime** - It allows the trial of juveniles in conflict with law in the age group of 16-18 years as adults, in cases where the crimes were to be determined.
- The nature of the crime, and whether the juvenile should be tried as a minor or a child, was to be determined by a Juvenile Justice Board.
- **Adoption** - The Act brought more universally acceptable adoption law instead ofthe Hindu Adoptions and Maintenance Act (1956) and Guardians of the Ward Act (1890) which was for Muslims.
- The Act however did not replace these laws.
- The existing Central Adoption Resource Authority (CARA) was given the status of a statutory body to enable it to perform its function more effectively.

What are the provisions empowering the DMs?

- With more powers, the District Magistrates (DMs), including Additional DMs (ADMs), can now issue adoption orders under Section 61 of the JJ Act.
- DMs and ADMs will also monitor the functioning of various agencies under the JJ Act in every district.
- These include the Child Welfare Committees (CWCs), Juvenile Justice Boards, District Child Protection Units and Special Juvenile Protection Units.
- The changes will ensure speedy trials and increased protection of children at the district level, and will also enhance accountability.
- [Adoption processes are currently under the purview of courts. With an overwhelming backlog, each adoption case could take years to be passed.]
- The DMs will also carry out background checks of CWC members to check for possible criminal backgrounds.
- This is to ensure that no cases of child abuse or child sexual abuse is found against any member before they are appointed.
- [CWC members are usually social welfare activists with educational qualifications.]
- The CWCs should report regularly to the DMs on their activities in the districts.
- **Concern** - The DM is in charge of all processes in a district including all task forces and review meetings.
- So, it is felt that the too many responsibilities given to DMs under the amendment may not be given a priority.

What are the changes made in offences by juveniles?

- Under the 2015 Act, offences committed by juveniles are categorised as heinous offences, serious offences, and petty offences.
- Most heinous crimes have a minimum or maximum sentence of 7 years, and juveniles between 16-18 years age would be tried as adults for these.
- Serious offences generally include offences with 3 to 7 years of imprisonment.

- The 2021 Bill adds that serious offences will also include offences for which maximum punishment is imprisonment of more than 7 years, and minimum punishment is not prescribed or is less than 7 years.

- Presently, there is no mention of a minimum sentence in the JJ Act.

- So, juveniles between the ages of 16-18 years could also be tried as adults for a crime like the possession and sale of an illegal substance.

- Such offences will now fall under the ambit of a "serious crime".

- The provisions thus ensure that children, as much as possible, are protected and kept out of the adult justice system.

- The Act also provides that offences against children that are punishable with imprisonment of more than 7 years, will be tried in the Children's Court.

- And offenses with punishments of less than 7 years imprisonment will be tried by a Judicial Magistrate.

4. SOCIAL JUSTICE

4.1   SC Guidelines for Migrant Workers

What is the issue?

- The Supreme Court, in June 2021, pronounced its judgment in the migrant labourers case.

- While the guidelines laid down by the Supreme Court are welcome, they require robust systems to implement.

What is the case about?

- The case was initiated in 2020 after the national lockdown was announced.

- Thousands of landless labourers had started walking towards their home States.

- They faced loss of employment and income.

- The Supreme Court took cognisance of the matter.

- It rightfully acknowledged the plight of the workers in light of the strict lockdown.

- It laid down numerous guidelines to provide relief to workers and efficiently tackle the problem till the threat of COVID-19 subsides.

What are the key SC guidelines in this regard?

- Two key components to protect the migrants during this time were the food and travel arrangements.

- Under the National Food Security Act, migrant workers are issued ration cards.

- They are entitled to dry ration under various government programmes, such as the Atmanirbhar Bharat scheme, during the pandemic.

- In furtherance of the above, the court asked the States to formulate their own schemes and issue food grains to migrants.

- The Court laid down that dry ration be provided to migrants who want to return to their homes.

- Further, the court said that identity proof should not be insisted upon by the governments.

- The court also called upon the State governments to arrange transportation for workers who need to return to their homes.

What are the shortcomings?

- There are no normative data that would allow the States to identify eligible migrants to provide dry ration to them.

- The court took cognisance of this.

- It fixed July 31, 2021 as the deadline for the States to implement the 'One nation One Ration Card' scheme.

- And it thus directed the Ministry of Labour and Employment to ensure that the National Database for Unorganised Workers is updated by July 31.

- But it is unlikely that a standardised system can be developed within the deadline prescribed by the court.

- Apart from dry ration, the top court also directed the State governments to run community kitchens for migrant workers.

- However, there are administrative problems in implementing these measures.

- Migrant workers keep moving in search of employment.

- So, it is difficult to cover them all under the scheme.

- Also, many States do not have the necessary infrastructure to run and maintain community kitchens on such a large scale.

- The Court also recognised the need for direct cash benefit transfer to workers in the unorganised sector.

- But it did not issue any guidelines for the same as the workers need to be covered by the States themselves.

5. HEALTH

5.1 Ramping Up Vaccine Supply

What is the issue?

- It is less than a month after the Centre revised its vaccination policy and took over the responsibility of vaccine procurement from the States.

- But, old worries of vaccine supply constraint appear to have resurfaced.

What is the current vaccination pace?

- The Centre's CoWIN database shows that the weekly pace of vaccination has declined to nearly 60% of what was seen in the week after June 21.

- This has caused several States, particularly in South India, to complain of a shortage.

- On June 21, 2021 the first day of the new policy, 91 lakh doses were administered.

- Until June 27, it was about 4 crore.

- The peak of June 21-27 saw 60 lakh vaccines a day becoming the norm.

- However, the last time India crossed that daily figure was July 3.

- So, the period July 5-11 saw only 2.3 crore vaccine doses dispensed.

- The daily doses have again slipped to 30-40 lakh.

What is the vaccination coverage so far?

- India still has managed to inoculate only 33% of its adult population with at least one dose.

- And just about 8% have been fully vaccinated (two doses).

- At this rate, it is impossible for the Centre to deliver on its stated goal of inoculating all Indian adults by the end of 2021.

- Also, there are clear signs of increasing number of cases.

- The nature of rise in cases and deaths in countries such as the U.S. and U.K suggests that India is not totally out of danger.

What does this call for?

- The concerns over a third wave have been voiced.

- But meaningful preparedness entails having enough vaccines.

- At least 86 lakh doses have to be administered every day.

- This target has to be met if all Indian adults are to be fully vaccinated by the end of 2021.
- Centre continues to put the onus on States for planning but does not address the concern of inadequate Covaxin supplies.
- It has ordered at least 8 crore doses since January 2021 but only 4.7 crore have been administered.
- While daily vaccination rates will see spikes and dips, aggressive publicity measures and campaigns are necessary to boost vaccination.
- The Centre and States must work together towards this.

6. GOVERNANCE

6.1   Civil Society for Governmental Accountability

What is the issue?

- The second wave of Covid has exposed the gaps in holding the government in power accountable.
- This necessitates a relook into the role of the civil society.

What constitutes the civil society?

- Civil society refers to associations or communities that work above and beyond the state.
- India's civil society has many actors:
  i.   grassroots organisations that connect to the last mile and provide essential services
  ii.   think tanks and academic institutions that offer new policy ideas and generate evidence
  iii.   advocacy organisations that amplify and build support for causes
  iv.   large impact funds and philanthropists who decide how these organisations get funded

What are the shortfalls in its functioning?

- Successive governments in India have been wary of the potential contributions of the civil society.
- Governments have significantly curtailed the kind of activities that civil society actors can engage in.
- Philanthropists and donor organisations are unable to support initiatives that strengthen India's democracy and its accountability mechanisms, for fear of retribution.
- Reportedly, close to 90% of total donor interest in India was targeted towards primary education, primary healthcare, rural infrastructure and disaster relief.
- This leaves other challenging areas such as human rights and governance with minimal funding.
- Many civil society actors also focus on engaging with narrow policy problems.
- They often ignore the core politics around policy and focusses disproportionately on technocratic solutions.

What is the implication?

- In the absence of a strong push from civil society, the democratic institutions have no intrinsic incentive to reform.
- Evidently, in challenging times such as the current pandemic, the country had no effective mechanism to hold a sitting government accountable.
- The judiciary was helpless, with judges having trouble in getting answers from the government.
- Even Parliament was unable to perform its oversight duty; it barely met in 2020.
- Evidently, the system of checks and balances in India's democracy has been weakened.

6.2   Police Reforms

What is the issue?

- An efficient criminal justice system helps a country politically, socially and economically.

- But political masters show reluctance to implement the Supreme Court-mandated police reforms of 2006. Here is a look at the importance of police reforms.

How important are police reforms?

- **Social** - The social implications of lack of police reforms can be gauged from the report, "Crime in India 2019" published by NCRB.

- As per the report, more than 25,000 cases of assault on women, close to 12,000 rape cases and 4000 "dowry deaths" have been pending trial for 5 to 10 years.

- **Economic** - The cost of the failed criminal justice system isreflected in the reluctance of foreign companies to set up manufacturing and commercial ventures in India.

- They see quick settlement of criminal, labour and civil disputes as a precondition.

What are the additional roles performed by police stations?

- Besides prevention and detection of crime and maintenance of law and order, police stations in India undertake numerous daily tasks.

- They provide verifications and no objection certificates of different kinds to citizens.

- They supply crucial documents.

- Police stations also verify domestic help/employees of central and state governments/public sector undertakings/students going abroad for studies.

- The procedures are non-transparent and timelines are often blurred, thus encouraging corrupt practices.

What are the reforms needed?

- A definite attempt can be to ensure time-bound delivery of the above-mentioned services to citizens.

- States need to invest more resources to upgrade their e-portals for providing the 45 identified basic services to the citizens.

- Adhering to a defined process with a timeline and clear delineation of the levels of police officers involved can ensure transparent and non-corrupt service delivery.

- Along with English or Hindi, the state languages should also be incorporated for ease of access to all citizens.

- Investigation and prosecution need improvement and all criminal trials must be completed within a year.

- Technology-driven service delivery mechanisms can help achieve this.

7. INTERNATIONAL ISSUES

7.1   Canada's Residential School Graves - Colonial Past

What is the issue?

- Indigenous groups and officials have discovered hundreds of unmarked graves of indigenous children in parts of Canada.

- The discovery has brought back to light Canada's dark past when indigenous people faced systemic discrimination and violence.

What was the recent discovery?

- In May 2021, the remains of 215 children were found on the grounds of a former residential school in British Columbia.

- In July 2021, another 751 unmarked graves were found at the site of a similar residential school in the province of Saskatchewan.

What was the colonial system in place?

- The graves point to Canada's colonial practice of having special residential schools.
- These were funded by the federal government and run mostly by the Catholic Church.
- They have been in operation since the mid-19th century, with the last one closing only in 1996.
- Between 1882 and 1996, an estimated 150,000 children were sent to residential schools.
- Indigenous children were forced to attend these schools.
- Most of them were forcefully taken away from their families and many never returned.
- The children were not allowed to speak their languages or practise their culture.
- Many were abused.
- An estimated 4,000 children died, mainly due to TB, malnutrition and other illnesses resulting from the filthy conditions in the schools.
- In 1883, Canada's first Prime Minister, Sir John A. Macdonald, defended the system of residential schools in Parliament.
- He said that indigenous students should be kept away from their parents, "who are savages".

What were the State's responses in the following years?

- In 2008, Prime Minister Stephen Harper issued a formal apology.
- The Government also set up a Truth and Reconciliation Commission.
- This was tasked to document the history and the lasting impact of the school system on the indigenous communities.
- In 2015, the commission called the violence against the indigenous students a "cultural genocide".
- It has made 94 "calls to action" to different levels of the government and communities.
- These included independent investigations and steps to protect Aboriginal rights and culture.
- It also asked the Catholic Church to apologise and take steps toward reconciliation.
- The Vatican is yet to formally apologise for the schools.
- Justin Trudeau (came to power in 2015) had promised that addressing the grievances of the indigenous communities was a core agenda.
- But 6 years later, the indigenous organisations do not find the State's actions assuring.

7.2   Taliban's Surge

What is the issue?

- Since the start of the U.S. withdrawal from Afghanistan, the Taliban has made rapid territorial gains.
- This calls for a proactive role by both the Afghan government and the regional powers who are invested in the country's long-term stability.

How is Taliban's control evolving?

- 90% of U.S. withdrawal is complete.
- With this, the Taliban have taken control of 195 of Afghanistan's 407 districts, and are contesting 129 others.
- Most of their recent victories are in the northern provinces of Badakhshan and Takhar.
- These had notably resisted Taliban rule in the 1990s.
- In several northern districts, Afghan troops have either surrendered or retreated.

What is the impending threat?

- The north is home to Afghanistan's elite power brokers and leaders.

- If this is lost, the risk of a total collapse of the government in Kabul would increase.

- The government still controls most of the provincial capitals and cities.

- But they are practically surrounded by the Taliban.

- The pace of the Taliban's advancement in the countryside is on the rise.

- It is thus possible that they could launch an offensive to take the population centres once the foreign troops are out.

- On the other hand, the Taliban's strategy is still not clear.

- Their political office in Doha started peace talks with Afghan government representatives in September 2020.

- It continues to say that they were committed to the dialogue.

- But on the battlefield in Afghanistan, they continue a relentless campaign aimed at capturing more territories.

Why is the situation so?

- Part of the problem was the total abdication of leadership and responsibility by the U.S., which invaded Afghanistan 20 years ago.

- When direct talks between the U.S. and the Taliban began, the U.S.'s focus was on exiting the war.

- It was not into finding a peaceful settlement to the crisis that it partly created.

- Therefore, the U.S. failed to put pressure on the Taliban to extract concessions.

- Instead, it struck a deal with them, completely ignoring the concerns of the Kabul government.

- Now, the Taliban are much more powerful on the ground.

- Even if the peace process with the Afghan government is revived after American pull-out, they would negotiate from a position of strength.

7.3 Republicans' Opposition to Critical Race Theory - U.S.

Why in news?

Many state legislatures in the U.S. controlled by the Republican party are passing laws against the 'critical race theory.'

What is the critical race theory?

- Critical race theory (CRT) is a way of thinking about America's history through the lens of racism.

- It is an approach to grappling with a history of White supremacy.

- It began as a left-wing academic discussion in the 1970s and 1980s.

- These scholars were studying the lack of racial progress following the passing of landmark civil rights laws in the decade preceding.

- The CRT acknowledges that systemic racism is still part of the country's society.

- **Key ideas** - Race is culturally invented, not biological.

- Racism maintains the dominance of affluent White people.

- So, many are not interested in doing away with it.

- And so, racism is an everyday experience for most people of colour in the US.

- Laws and institutions have, for years, promoted racial inequality.

- The CRT thus attends to law's role in establishing the rights and privileges.

Why do the Republicans oppose CRT?

- The CRT kept expanding slowly in academic journals and books over the decades.

- But it became suddenly exposed to a large audience after the killings of George Floyd and Breonna Taylor by police.

- [Breonna Taylor, a Black medical worker, was shot and killed by Louisville police officers in March 2020 during a raid on her apartment.]

- These events sparked nationwide protests and discussions on racism.

- The following debates around CRT angered many conservatives, who saw it as an attempt to rewrite American history.

- Trump too lashed out against the educational curriculum teaching the impact of slavery in the US as "revisionist history" and "a crusade against American history".

What are the recent moves?

- Eight Republican-ruled states have passed laws or brought administrative actions to limit how CRT or related concepts can be taught in the classroom.

- As many as 25 states have considered laws or steps to restrict how race and racism can be taught.

- Republican senators introduced a resolution that condemns the practice of requiring teachers to receive Critical Race Theory education.

What are the concerns?

- There is little to no evidence that CRT is being taught in America's kindergarten to 12th grade public school system.

- But many schools do teach ideas central to CRT, such as the impact of slavery on the country.

- So, the laws passed against CRT would end up curtailing all discussions on racism in schools.

- It could lead to a whitewashing of American history.

- It is much a continuation of the decades-long opposition to gains from the civil rights movement.

- The coordinated action now by the conservatives could undermine the national conversation on race that had gained momentum in the recent years.

G.S PAPER III

8. ECONOMY

8.1 India's 1991 Liberalisation Leap & Lessons

What is the issue?

- It is three decades after India embarked upon the path of economic liberalisation in 1991.

- In this context, here is an assessment of the decision and the results of the reforms.

How were the pre-reforms years?

- The private sector was not allowed to invest in a number of sectors thought to be critical for development.

- Key sectors were reserved for the public sector despite its lacklustre performance.

- Where the private sector was allowed, it could invest only after getting an industrial licence.

- That was especially hard to get for "large" industrial houses.

- Over 860 items were reserved exclusively for small-scale producers.

- These included many items that had very high export potential.

- So, imports were more strictly controlled than in almost any other developing country.

- This was because it was felt necessary to conserve scarce foreign exchange.

- Consumer goods simply could not be imported, so domestic producers faced no import competition.

- Producers could import capital goods and intermediates needed for production.

- But this again required an import licence.
- This was given only if the government was satisfied that the import was essential and domestic substitutes were not available.
- Finally, the import of technology was controlled and Foreign Direct Investment (FDI) was discouraged.
- Clearly, it was not a system geared to encourage enterprise or innovation.
- Efforts were made in the 1980s to liberalise the system but these were incremental changes.
- By 1990, it was clear that drastic change was needed.

What have the 1991 reforms achieved?

- The reforms were aimed at unleashing the energies of the private sector to accelerate economic growth.
- This was to be done in a manner that ensured an adequate flow of benefits to the poor.
- The reforms certainly succeeded in this objective.
- The full benefits took time to materialise because a gradualist approach was adopted.
- But the results are dramatic if seen in a longer time frame.
- The GDP growth averaged 7% in the 25 years from 1992 to 2017.
- The preceding ten years had an average of 5% and the preceding 20 years, 4%.
- Importantly, as growth accelerated, poverty declined.

What are the shortcomings though?

- Some of the reforms begun in 1991, especially in the financial sector, are yet to be completed.
- Also, in the health and education sectors, what have been done is much below the potential and need.
- Environmental concerns have not been adequately built into the development strategy.
- India is still at the lower end of the middle-income group of countries.
- Many more reforms are needed to get to the top of the group.
- The need for labour market reforms was recognised.
- But attention was given first to get the industrial, trade and financial sector reforms,and take up labour market reforms later.
- **Employment** - There was a fall in employment in agriculture after 1991.
- But it was accompanied by sufficient growth in total employment in non-agriculture sectors.
- Also, total employment actually increased.
- The disappointing thing was that employment in manufacturing did not increase as rapidly as one would have liked.
- This was because Indian was not able to replicate the East Asian experience of rapid growth in the export of labour-intensive manufactures.
- Also, most of the increase in employment, including in manufacturing, was not regular contractual employment but informal non-contractual employment.

What about import tariffs?

- India progressively lowered import tariffs from an estimated 57.5% in 1992 to 8.9% in 2008.
- But this trend has been reversed over the past few years.
- This appears to be in line with rising protectionism globally.
- But increasing the import tariffs will hamper India's stated ambition to become part of global supply chains.
- Indian industry has legitimate complaints about poor infrastructure, poor logistics and time-consuming trade procedures, which reduce its competitiveness.

- But the solution lies in addressing these problems directly.

- Raising import duties, which will only raise costs in the economy, is not the right solution.

- The government should engage with Indian industry and other experts.

- Moving to an average duty rate of about 7%, gradually narrowing the range of variation across products and eliminating duty reversals would be the right approach.

8.2 Financial Stability Report July 2021

Why in news?

The Reserve Bank of India recently released its latest Financial Stability Report (FSR).

What is the FSR?

- The Financial Stability Report (FSR) is published twice each year by the RBI.

- It presents an assessment of the health of the financial system.

- The FSR primarily looks at questions like the following:

    i.   Do Indian banks (both public and private) have enough capital to run their operations?

    ii. Are the levels of bad loans (or non-performing assets) within manageable limits?

    iii. Are different sectors of the economy able to get credit (or new loans) for economic activity?

What is the significance of the FSR?

- The data and information in the FSR allows the RBI to assess the state of the domestic economy.

- The FSR also allows the RBI to assess the macro-financial risks in the economy.

- As part of the FSR, the RBI also conducts "stress tests."

- This is to figure out what might happen to the health of the banking system if the broader economy worsens.

- Similarly, it also tries to assess how factors outside India might affect the domestic economy.

- E.g. the crude oil prices or the interest rates prevailing in other countries

- Each FSR also contains the results of something called the Systemic Risk Surveys.

What are the highlights of the recent report?

- **GNPAs** - In June 2020, the FSR had noted that Gross NPAs (GNPAs) could rise from 8.5% (of gross loans and advances) at the end of March 2020 to a two-decade high of 14.7% by March 2021.

- The recent FSR has found that the actual level of bad loans as of March 2021 is just 7.5%.

- However, the GNPA ratio of Scheduled Commercial Banks may increase from 7.48% in March 2021 to 9.80% by March 2022 under the baseline scenario.

- Undera severe stress scenario, it could increase to 11.22%, as shown by "macro-stress tests" for credit risk.

- So, the relief provided by the RBI in 2020 has contained the number of Indian firms that openly defaulted on their loan repayment.

- But things could get worse, especially for the small firms (or MSMEs).

- [The relief measures include cheap credit, moratoriums and facilities to restructure existing loans]

- **Regulatory relief and NPA** - A clear picture of NPAs will emerge only when the regulatory relief provided by the RBI is taken away.

- But it is not always clear when a central bank should pull back such regulatory relief.

- Historical experience shows that credit losses remain elevated for several years after recessions end.

- Indeed, in EMEs [Emerging Market Economies], NPAs typically peak 6 to 8 quarters after the onset of a severe recession.

- The longer the blanket support is continued, the higher the risk.

- Because providing excess regulatory relief might help inherently inefficient firms too.

- On the other hand, banks need sufficient buffers to absorb losses along the entire path to full recovery.

- So, support measures cannot be phased out before firms' cash flows recover.

- **Credit growth** - At less than 6%, the overall rate of credit growth in commercial banks is quite dismal.

- What is particularly worrisome is the negligible growth rate in wholesale credit [refers to loans worth Rs 5 crore or more].

- The rate of growth for retail loans (loans to individuals) had become much better in comparison.

- Notably, there was a sharp fall in credit growth much before the Covid pandemic hit India.

- It points to a considerable weakness in demand even before the pandemic.

- This, in turn, suggests that recovery in credit growth may take longer than usual.

- **Systemic Risk Survey (SRS)** - The FSR also published the results of the latest round (April 2021) of the Systemic Risk Survey (SRS).

- It reflects upon the major risks faced by the Indian financial system.

- The risks are broadly classified into five categories - global, macroeconomic, financial market, institutional and general.

- The overall risk perception is "medium."

- However, there were several factors on which experts expected a worrying picture than the one provided in the January 2021 FSR.

8.3 EU's Carbon Border Tax - India's Concerns

Why in news?

Indian Environment Minister expressed concerns at the European Union's (EU) plan to levy an additional 'carbon border tax' to discourage import of carbon-intensive goods.

What is the EU's proposal?

- Earlier, the EU Parliament had adopted a resolution to implement a 'Carbon Border Adjusted Mechanism' (CBAM).

- To begin with, by 2023, the CBAM would cover energy-intensive sectors.

- These may include cement, steel, aluminium, oil refinery, paper, glass, chemicals as well as the power sector.

- A recent draft regulation pertaining to the CBAM proposed that goods entering the EU would be taxed at the borders.

- Such a tax would promote "low-carbon, resource-efficient manufacturing."

- The UK and the US are also considering such proposals.

What is the rationale?

- Two keys reasons for the carbon tax proposal are EU's environmental goals and its industries' global competitiveness.

- Recently, the EU declared it would cut its carbon emissions by at least 55% by 2030 compared to 1990 levels.

- EU's greenhouse gas emissions have fallen by 24% compared to 1990 levels.

- But emissions associated with imports are increasing.

- These contribute 20% of the EU's carbon dioxide emissions.

- So, a carbon tax would incentivise other countries to reduce GHG emissions.

- This can further shrink the EU's carbon footprint.

- Secondly, the 27 EU member states have much stricter laws to control GHG emissions.

- It has an 'Emissions Trading System' that caps how much GHG individual industrial units can emit.

- This makes operating within the EU expensive for certain businesses.

- So, the EU authorities fear that these firms might prefer to relocate to countries that have more relaxed or no emission limits.

- This is known as 'carbon leakage' and it increases the total emissions in the world.

Who all have opposed it?

- The BASIC (Brazil, South Africa, India, and China) countries' grouping had opposed the EU's proposal, terming it "discriminatory."

- It is said to be against the principles of equity and 'common but differentiated responsibilities and respective capabilities' (CBDR-RC).

- These principles acknowledge that richer countries have a responsibility of providing financial and technological assistance to developing and vulnerable countries to fight climate change.

- Developing nations feel that the developed nations have failed to fulfil the Green Climate Fund commitments.

- Under this, developing nations were to receive $100 billion for green development by 2020. This has now been delayed to 2025.

How does this impact India?

- A carbon tax would increase the prices of Indian-made goods in the EU.

- That would make Indian goods less attractive for buyers and shrink the demand.

- This would create serious near-term challenges for companies with a large greenhouse gas footprint.

- It would get to be a new source of disruption to a global trading system.

- Notably, EU is India's third largest trading partner.

- It accounted for $74.5 billion worth of trade in goods in 2020, or 11.1% of India's total global trade.

- India's exports to the EU were worth $41.36 billion in 2020-21.

8.4   OECD Tax Proposals - Implications for India

Why in news?

India and the majority of the members of OECD-G20 Inclusive Framework on Base Erosion and Profit Shifting (BEPS) have joined a new two-pillar plan to reform international taxation rules.

What is it about?

- The OECD recently issued a statement indicating consensus amongst 130 nations (out of 139 participants) on the two-pillar plan.

- The announcement marks the culmination of international negotiations since the BEPS (Base erosion and profit shifting) 2015 reports.

- [It has overcome the shock due to the previous US administration withdrawing from the Inclusive Framework discussions.]

- The key objective is to ensure that large Multinational Enterprises (MNEs) pay tax where they operate and earn profits.

What are the key features?

- **Pillar One** will ensure a fairer distribution of profits and taxing rights.

- This will be among countries, with respect to the largest Multinational Enterprises (MNEs), including digital companies.

- It would re-allocate some taxing rights over MNEs from their home countries to the markets where they have business activities and earn profits.

- This will be regardless of whether the firms have a physical presence there or not.

- **Pillar Two** seeks to put a floor on competition over corporate income tax.
- It does this through the introduction of a global minimum corporate tax rate.
- The countries can use this minimum tax to protect their tax bases.
- OECD further claims that the two-pillar package would provide much-needed support to governments.
- It will help those looking to raise necessary revenues to repair their budgets and their balance sheets.
- It will also invest in essential public services, infrastructure and the measures necessary to help optimize the quality of post-COVID recovery.

How will India be benefitted?

- The consensus adds much-needed certainty and stability to the international tax system.
- For India, the outcome is crucial because of its active engagement in the OECD-led deliberations.
- India had strongly advocated greater taxing rights to source or market jurisdictions.
- This has indeed been the demand of most developing countries.
- Because new-age MNEs have figured out the basis to limit their global tax incidence.
- They work through innovative tax structures and invisible presence due to digital technologies, within the framework of the current treaty principles.
- The Indian law-makers will now have to make a refined and nuanced direct taxation law.

What are the concerns for India?

- **Application** - The proposals include complex rules.
- Itincludes applying formulas to data relating to global business revenue of the MNE group.
- Also, its application requires real-time information sharing and conjoint implementation by the tax-authorities across the globe.
- Despite the policy level alignment of the participating countries, achieving such shared tax-assessment in practice is challenging and uncertain.
- **Limited scope** - By design, the two pillars cover a small class of taxpayers.
- - MNEs which have a global turnover above 20 billion euros and net profitability above 10% for Pillar One.
- Given that the coverage is limited, the disputes and differences in approach are likely to continue for taxing smaller players.
- **Net benefit** - Accepting the two-pillar solution brings taxing rights for the participating nations.
- Simultaneously, it implies foregoing the taxing rights for others.
- In other words, it is a trade-off, of taxing the big to spare the poor.
- This sounds wise on a progressive-taxation scale and horizontal equity ideal.
- But it may not be fair since it is not necessary that the biggest MNEs earn from India more.
- It also discounts the possibility of taxing the smaller MNEs who earn big from India.
- So, who will have the net benefits from applying these rules remains a question.
- Specifically for India, accepting the two-pillar solution implies it being under pressure.
- It has to undo its new international tax measures, particularly the equalisation levy, and possibly modify its nexus-based Significant Economic Presence.

Quick Fact

OECD

- OECD - Organisation for Economic Co-operation and Development
- OECD is an international organisation that works to build better policies for better lives.

- The OECD brings together Member countries and a range of partners that collaborate on key global issues at national, regional and local levels.

BEPS

- BEPS - Base Erosion and Profit Shifting

- It refers to tax planning strategies that exploit mismatches and gaps that exist between the tax rules of different jurisdictions.

- It is done to minimize the corporation tax that is payable overall.

- It is done by either making tax profits 'disappear' or shift profits to low tax jurisdictions where there is little or no genuine activity.

- In general BEPS strategies are not illegal. They just take advantage of different tax rules operating in different jurisdictions.

8.5   RBI Curbs on Foreign Card Firms

Why in news?

The RBI has so far barred three foreign card payment network companies [Mastercard, American Express and Diners Club] from taking new customers on board, over the issue of storing data in India.

What is the recent decision?

- Recently, the RBI imposed restrictions on Mastercard Asia Pacific Pte Ltd.

- It is kept from onboarding new domestic customers (debit, credit or prepaid) in India.

- The RBI cited as reason the non-compliance with guidelines for storage of data in India.

- It said it had given almost 3 years for Mastercard to comply with the regulatory directions.

- But the firm was unable to complete the process.

- Earlier, the RBI had imposed restrictions on American Express Banking Corp and Diners Club International Ltd, over the same issue.

- **Impact** - Existing customers using credit or debit cards of these firms can continue using the same.

- However, banks and non-banking finance companies that were planning to use these payment networks will now not be able to use these platforms to enrol new customers.

- This leaves only Visa Inc and homegrown NPCI's RuPay as payment providers under no restrictions currently.

What are the RBI guidelines in this regard?

- Funds transferred using debit or credit cards are routed through platforms such as Mastercard, Visa and NPCI.

- These operate under the Payment and Settlement Systems (PSS) Act, 2007.

- Under the Act, the RBI is the authority for the regulation and supervision of payment systems in India.

- As part of this came the RBI circular on Storage of Payment System Data, dated April 6, 2018.

- These guidelines on data storage were to be adhered to within 6 months.

- As per this, all system providers are to ensure that the entire data relating to payment systems operated by them is stored in a system only in India.

- It applies to full end-to-end transaction details, information collected or carried or processed as part of the message or payment instruction.

- They were also required to report on their compliance to the RBI.

- They should also submit a board-approved system audit report conducted by a CERT-In empanelled auditor within the timelines specified.

- [CERT-In - Indian Computer Emergency Response Team.

- CERT-In is a government-mandated information technology (IT) security organization.]

What is the rationale?

- Data access for law enforcement purposes has for long been a challenge.

- So, the idea behind the move is to carry out effective law enforcement requirements.

- In the wake of the rising use of digital transactions, the RBI is particular that the payment systems need closer monitoring.

What are the challenges to compliance?

- Credit and card firms with global operations have been resisting the RBI move.

- They cite as reasons the costs, security risk, lack of clarity, and timeline.

- The RBI had stipulated that data should be stored only in India.

- Also, no copy [or mirroring] should be stored in other countries.

- But payment firms like Visa and Mastercard currently store and process Indian transactions outside the country.

- Their systems are centralised.

- So, they expressed the fear that transferring the data storage to India will cost them millions of dollars.

- Besides, once it happens in India, there is a possibility of similar demand from other countries also.

What is the alternative?

- Possibly, hard localisation may impact India's payments ecosystem.

- For a more effective mechanism for law enforcement, India needs to move beyond the slow and ineffective MLAT (Mutual Legal Assistance Treaty).

- It should move to a system based on bilateral treaties on data transfers with the EU, UK and the US.

- This will ensure that Indian law enforcement requirements of access to data are met in a timely manner.

- It will also allow data flows to foster innovation and trade in the tech ecosystem.

- However, the RBI is against the suggestion that a copy of data stored outside be brought to India.

9. ENVIRONMENT

9.1   Microplastics Pollution in the Ganga

Why in news?

An analysis of the stretches of the river Ganga by Delhi-based environment NGO Toxics Link has revealed pollution by microplastics.

What are microplastics?

- Microplastics are defined as synthetic solid particles sized ranging 1 micrometre (μm) to 5 millimetre (mm).

- These are insoluble in water.

- Microplastics are recognised as a major source of marine pollution.

- The major sources of microplastics are:

    i.   untreated sewage from many cities along the river's course

    ii.   industrial waste

    iii. religious offerings wrapped in non-degradable plastics

- The plastic products and waste materials released or dumped in the river are eventually broken down into micro particles.

- The river finally transports large quantities downstream into the ocean which gets to be the ultimate sink of all plastics being used by humans.

What does the study reveal?

- The study is titled 'Quantitative analysis of Microplastics along River Ganga'.

- It was based on an analysis of water samples at Haridwar, Kanpur and Varanasi.

- The highest concentration of microplastics was found at Varanasi.

- It comprised single-use and secondary broken-down plastics from articles of everyday use.

- These include tyres, clothing, food packaging, bags, cosmetics with microbeads, garland covers and other municipal waste.

- The sample test results show the presence of at least 40 different kinds of polymers as microplastics.

- The shapes and nature of the observed resins ranged from fibres to fragments, films and beads.

- Fragments were the predominant shape in all locations, followed by film and fibre.

- Microbeads were observed in Varanasi and Kanpur, while no beads were found in Haridwar.

- The most frequent size range observed in all the samples was <300μm.

- Previous studies say that over 663 marine species are affected adversely due to marine debris.

- 11% of them are said to be affected due to microplastic ingestion alone.

What does this signify?

- The study results seriously question the progress of two high-priority, well-funded government missions:
    i. The Swachh Bharat, to deal with solid waste
    ii. Namami Gange, to rid the Ganga river of its pollution

- Microplastics are flowing all along into the river system.

- This suggests a direct linkage between the poor state of both solid and liquid waste management.

- Official data indicate that 97 Ganga towns may be discharging about 750 million litres of untreated sewage a day into the river.

What is the larger concern?

- Microplastics is recorded in recent times in the remotest of places.

- These include Mount Everest, Arctic snow, Icelandic glaciers, the French Pyrenees, and the depths of the Mariana Trench, among others.

- It poses a serious hazard as plastics waste production outpaces governments' capacity to collect and manage it,given the limits with recycling.

- The waste management rules issued by successive governments fall short at the implementation level.

- The Centre recently issued a draft to tighten the Plastic Waste Management Rules.

- But cities have failed to implement existing rules as well as the Solid Waste Management rules.

What are the measures needed?

- Swachh Bharat must mean not merely keeping waste out of sight, achieved through costly dumping contracts.

- It instead means sharply reduced waste generation, full segregation and recycling.

- Plastic waste around the world is threatening the food web.

- The crisis thus demands a new global treaty modelled on the Montreal Protocol and the Paris Agreement.

- India needs to demonstrate that it is serious about a clean-up at the domestic level.

- Improving plastic waste management and the subsequent reduction in microplastic pollution should be the priority.

- Various stakeholders, including industry, the government and civil society organisations, need to join hands.

9.2 Sariska Relocation

What is the issue?

- Tiger happens to be at the pinnacle of the eco-system triangle. Saving tigers is much like saving the forests.
- Here is a look at the tiger conservation efforts in India, with particular reference to relocations made in Rajasthan.

Why are tigers, and conserving them, so significant?

- As top predators, wild tigers play an important role in maintaining the harmony of the planet's ecosystems.
- The tiger moves in a big territory and requires a sizeable forest area.
- So, tiger conservation efforts with landscape connectivity and conservation involve measures in such a large range.
- Consequently, it leads to the betterment and strengthening of the entire biosphere.

What were the results of Project Tiger?

- At the beginning of the 20th century, the number of Indian tigers was around 40,000.
- After Independence, tigers were killed mercilessly and the 1972 tiger census put their numbers at less than 1500.
- [The tigers were killed and their parts were sold to South-East Asian countries, for medicinal purposes.]
- To preserve the tiger, the Indian government banned their hunting and launched 'Project Tiger' in 1973.
- It created tiger reserves in the country.
- The viable tiger population in their natural habitat was also maintained.
- Starting with nine tiger reserves in 1973, there are now around 50 tiger reserves in India.
- The project totally covers an area of nearly 40000 sq. km.

What led to the constitution of the NTCA?

- At the beginning of the 21st century, the tiger population again started declining.
- The main Protected Area which was left without tigers due to hunting and poaching activities was the Sariska Tiger Reserve (Rajasthan) in 2004-2005.
- Subsequently, the Panna Tiger Reserve (M.P) faced the same in 2007-2008.
- This led to several inquiry commissions, at national and state levels to find out the reason behind it.
- Subsequently, the government reconstituted 'Project Tiger' and converted it into the National Tiger Conservation Authority (NTCA).
- The NTCA had more power to check poaching and preserve the tiger population.
- Its mandate included setting up Tiger Protection Force and funding the relocation of villages from the protected areas.

What were the corrective measures taken in Sariska?

- The Rajasthan government took up the challenge to reintroduce tigers in Sariska and set up a task force in June 2008.
- The Wildlife Institute of India and World Wide Fund were approached.
- This was to plan and organize a population estimation exercise in Ranthambhore & Sariska.
- The genetic studies were undertaken to identify tigers suitable for translocation.
- For the first time in the history of tiger conservation, the wild cats were translocated from Ranthambhore to Sariska.

- The tiger population increased at a rapid speed from 1,411, as per the tiger census in 2006, to 2,226 in 2015 and 2,967 in 2018.

Why was relocation essential?

- Due to the loss of the forest corridors, tigers were surviving only in pockets like Sariska, Panna and Ranthambhore Tiger Projects.

- As these pockets were not connected, there was inbreeding of tigers.

- This, in the long run, would have affected their biological fitness, among other issues.

- Another factor important for tiger reserves is to have the right male and female ratio.

- These issues could only be corrected/addressed by relocation.

What are the other issues to be addressed?

- Every year, more than 100 tigers die due to several reasons (like health factors or poaching).

- Although protected areas are fundamental for their survival, a connecting landscape is also essential as they move between different habitats.

- These areas often have limited protection as many development, mining, and extraction projects diminish the forest areas.

- It also gives additional opportunities to poachers to kill and hunt tigers and leopards.

What should be done?

- Engaging local communities should be a key component of conservation efforts.

10.   INTERNAL SECURITY

10.1   Stalled Salwa Judum Judgement

What is the issue?

- The Salwa Judum judgement was delivered 10 years ago in 2011.

- But nothing has been done so far to implement it.

What is the Salwa Judum judgement?

- Salwa Judum is a vigilante movement started in 2005.

- It was sponsored by the Chhattisgarh and Central government, to fight against the Maoists.

- On July 5, 2011, Justices B. Sudershan Reddy and S.S. Nijjar, in a historic judgment, banned Salwa Judum.

- The surrendered Maoists and untrained villagers were used in frontline counter-insurgency operations as Special Police Officers (SPOs).

- The Court ruled this practice as unconstitutional.

- It directed that the existing SPOs be redeployed in traffic management or other such safe duties.

- Other matterswere left pending.

- These included prosecution of security forces and others involved in human rights violations, and rehabilitation of villagers who had suffered violence.

- The State had been asked to submit comprehensive plans for these.

How was the State's response?

- Ten years on, nothing has been done to implement the judgment.

- Instead, the State government has merely renamed the SPOs.

- They are now known working as the District Reserve Guard (DRG).

- Most of the DRG members are captured or surrendered Maoists.

- They are given automatic weaponry as soon as they join the police force.

- Some of them get one-three months of training, and some not even that.

- They commit the most excesses against their former fellow villagers.

- They suffer the most casualties in any operation.

- But, they are paid much less than the regular constabulary.

- These were all the reasons the judges had outlawed their use, but all of them continues.

- A contempt petition filed in 2012 in this regard is still awaiting hearing.

What are the excesses committed over the years?

- At its peak between 2005 and 2007, the Judum involved forcing villagers into government-controlled camps.

- Those who refused were punished by having their villages burnt.

- Hundreds of people were killed, and their deaths were not even recorded as 'encounters'.

- Villagers fled to neighbouring States or into the forests around their villages.

- Sangham members were either jailed or compelled to join the security forces as SPOs.

- [Sangham members are the active but unarmed Maoist sympathisers.]

- Thousands of innocent villagers were arrested en masse by the police as suspected Maoists.

- They spend long years in jail before being acquitted.

- For such villagers, meeting their families is difficult and hiring lawyers drains their meagre resources.

- Even as a few dedicated human rights lawyers have tried to help, the scale of arrests is massive.

- Deaths in encounters between jawans and Maoists periodically hit the national headlines.

- But extrajudicial killings of villagers and Maoists and killings of suspected informers by Maoists continue at a steady pace without much notice.

What is the present condition?

- Today, the Judum camps are virtually empty.

- Only the former SPOs and their families are remaining, in now permanent houses.

- Villagers split between those who went to the camp and those who went to the forest are now reconciled.

- People have come back and started cultivation.

- An entire generation has grown up andhave embarked on new struggles.

- Across the region, villagers are demanding schools and health centres.

- Instead, what they have got in abundance are CRPF camps at intervals of less than 5 km.

- Roads are being bulldozed through what were once dense forests.

- The government and security forces have been indicted in some cases by independent inquiries.

- But no steps have been taken to prosecute those responsible.

- Moving forward, both sides should get serious about peace talks.

10.2   Israeli Spyware Pegasus

Why in news?

- Cyber-attack reports are emerging from a collaborative investigation by journalists from around the world, including from India's The Wire, titled the 'Pegasus Project'.

- Accordingly, over 300 verified Indian mobile telephone numbers were targeted using spyware made by the Israeli firm, NSO Group.

What is Pegasus?

- Pegasus is also known as Q Suite.

- It is marketed by the NSO Group also known as Q Cyber Technologies, as a world-leading cyber intelligence solution.

- [NSO Group Technologies is an Israeli technology firm.]

- It enables law enforcement and intelligence agencies to remotely and covertly extract data "from virtually any mobile device."

- It was developed by veterans of Israeli intelligence agencies.

How is Pegasus different from other spywares?

- Pegasus can achieve such zero-click installations in various ways.

- The over-the-air (OTA) option is to send a push message covertly that makes the target device load the spyware.

- The target remains unaware of the installation and has no control over it.

- This is "NSO uniqueness, which significantly differentiates the Pegasus solution" from any other spyware available in the market.

What kind of devices are vulnerable?

- All devices, practically, are vulnerable to Pegasus intervention.

- iPhones have been widely targeted with Pegasus.

- It is done through Apple's default iMessage app and the Push Notification Service (APNs) protocol upon which it is based.

- WhatsApp has, in 2019, blamed the NSO Group for exploiting a vulnerability in its video-calling feature.

- In December 2020, a Citizen Lab report flagged how government operatives used Pegasus.

- They used it to hack 37 phones belonging to journalists, producers, anchors, and executives at Al Jazeera and London-based Al Araby TV.

- [Citizen Lab - an interdisciplinary laboratory based at the University of Toronto]

How does it work?

- Usually, an attacker needs to feed the Pegasus system just the target phone number for a network injection.

- The rest is done automatically by the system.

- And the spyware is installed in most cases.

- In some cases, though, network injections may not work.

- E.g., remote installation fails when the target device is not supported by the NSO system, or its operating system is upgraded with new security protections.

- Next, an attacker is likely to fall back on ESEM click baits.

- All else failing, Pegasus can be "manually injected and installed in less than five minutes" if an attacker gets physical access to the target device.

What kinds of information are at risk?

- Once infected, a phone becomes a digital spy under the attacker's complete control.

- Upon installation, Pegasus contacts the attacker's command and control (C&C) servers.

- It receives and executes instructions and sends back the target's private data.

- These may include passwords, contact lists, calendar events, text messages, and live voice calls (even those via end-to-end-encrypted messaging apps).

- The attacker can control the phone's camera and microphone, and use the GPS function to track a target.
- To avoid extensive bandwidth consumption that may alert a target, Pegasus sends only scheduled updates to a C&C server.
- The spyware is designed to evade forensic analysis, avoid detection by anti-virus software.
- It can also be deactivated and removed by the attacker, when and if necessary.

What should the government have done?

- Indian citizens were indeed targets of a vicious and uncivil surveillance campaign.
- The evidence is strong, and the credibility of these revelations is extremely high.
- The 'by whom?' with the revelations of these extensive surveillance is still uncertain.
- But signs point to the Indian government.
- The Government of India (GoI) should have come clean and explained what it intends to do to protect citizens.
- But instead, the GoI has fallen back on a disingenuous claim that no illegal surveillance is possible in India.

What is the complexity with surveillance?

- One cannot enjoy the liberties provided under the Constitution without national security.
- And a small amount of surveillance is necessary for national security.
- But national security is not meaningful if it comes at the cost of the very liberties.
- Excessive and unaccountable surveillance shatters the bedrock of the rule of law upon which a constitutional liberal democracy is built.
- There are numerous examples of surveillance powers being misused for personal and political gain, and to harass opponents.

What are the concerns with laws in place?

- Currently, the laws authorising interception and monitoring of communications are:
    i. Section 92 of the CrPC (for call records, etc)
    ii. Rule 419A of the Telegraph Rules
    iii. the rules under Sections 69 and 69B of the IT Act
- **Shortfalls** - It is unclear when the Telegraph Act applies and when the IT Act applies.
- A limited number of agencies are provided powers to intercept and monitor.
- It is also unclear which entities count as intelligence and security agencies.
- Further, there are programmes such as CMS, TCIS, NETRA, CCTNS, and so on.
- [Content management system; Telephone Call Interception System; NEtwork TRaffic Analysis; Crime and Criminal Tracking Network and Systems]
- But none of them has been authorised by any statute.
- They thus fall short of the 2017 K.S. Puttaswamy judgment.
- [The judgement clarified that any invasion of privacy could only be justified if it satisfied three tests:
    1. the restriction must be by law
    2. it must be necessary (only if other means are not available) and proportionate (only as much as needed)
    3. it must promote a legitimate state interest (e.g., national security)]
- In 2018, the Srikrishna Committee on data protection noted that post the K.S. Puttaswamy judgment, most of India's intelligence agencies are "potentially unconstitutional."
- Because they are not constituted under a statute passed by Parliament.

10.3 Assam-Mizoram Border Dispute

Why in news?

The old boundary dispute between Assam and Mizoram exploded in violent clashes at a contested border point.

What led to the violence and clashes?

- The violence highlights the long-standing inter-state boundary issues in the Northeast, particularly between Assam and the states that were carved out of it.

- Mizoram borders Assam's Barak Valley.

- Both the States border Bangladesh.

- Status quo should be maintained in no man's land in the border area.

- This was the understanding according to an agreement between governments of Assam and Mizoram some years ago.

- But people from Lailapur, Assam broke the status quo.

- They allegedly constructed some temporary huts.

- People from Mizoram side went and set fire on them.

- Officials say that the contested land belongs to Assam as per the state's records.

- According to Mizoram officials, the land claimed by Assam has been cultivated for a long time by residents of Mizoram.

- On the other hand, Mizoram's civil society groups blame "illegal Bangladeshis" (alleged migrants from Bangladesh) on the Assam side for the disturbances.
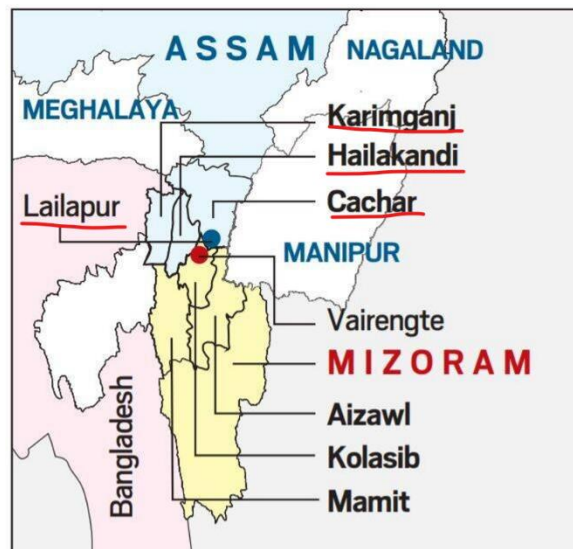
What is the origin of the boundary dispute?

- The boundary between present-day Assam and Mizoram is 165 km long.

- The heart of the dispute dates back to the colonial era.

- Back then, Mizoram was known as Lushai Hills, a district of Assam.

- The dispute stems from a notification of 1875 that differentiated the Lushai Hills from the plains of Cachar.

- [This was derived from the Bengal Eastern Frontier Regulation (BEFR) Act, 1873.]

- Another notification of 1933 demarcates a boundary between the Lushai Hills and Manipur.

- The Mizo society was not consulted prior to the 1933 notification.

- So, Mizoram believes the boundary should be demarcated on the basis of the 1875 notification.

- But the Assam government follows the 1933 demarcation.

- This is the point of conflict between the two states.

What led to the two differing notifications?

- British tea plantations surfaced in the Cachar plains during the mid-19th century.

- [It covers the Barak Valley - now comprises the districts of Cachar, Hailakandi and Karimganj.]

- Their expansion led to problems with the Mizos whose home was the Lushai Hills.

- In August 1875, the southern boundary of Cachar district was issued in the Assam Gazette.

- The Mizos say this was the fifth time the British had drawn the boundary between the Lushai Hills and the Cachar plains.

- But this was the only time when it was done in consultation with Mizo chiefs.

- This demarcation also became the basis for the Inner Line Reserve Forest demarcation in the Gazette two years later.

- But in 1933, the boundary between Lushai Hills and the then princely state of Manipur was demarcated.

- This notification said the Manipur boundary began from the trijunction of Lushai Hills, Cachar district of Assam and Manipur state.

- The Mizos do not accept this demarcation, and point to the 1875 boundary which was drawn in consultation with their chiefs.

- In the decades after Independence, many states and UTs were carved out of Assam:

  1. Nagaland (1963)

  2. Arunachal Pradesh (UT 1972, formerly NEFA)

  3. Meghalaya (UT 1972)

  4. Mizoram (UT 1972)

- Now, with different interpretations of the border question, clashes erupt often. The earlier one was in October 2020.

- In the current clashes, at least six Assam Police personnel were killed.

PRELIM BITS

11. HISTORY, ART &CULTURE

Kakatiya Ramappa Temple - A UNESCO World Heritage Site

- The World Heritage Committee (WHC) of UNESCO has declared Kakatiya Kakatiya Ramappa Temple (Rudeshwara Temple), Telangana as a World Heritage site (WHS). It is India's 39th WHS.

- **About** - Ramappa Temple was constructed in 1213 AD during the reign of the Kakatiya Empire by Recharla Rudra, a general of Kakatiya king Ganapati Deva. The presiding deity here is Ramalingeswara Swamy.

- The temple is located at the foothills of a forested area, close to the shores of the Ramappa Cheruvu, a Kakatiya-built water reservoir.

- It stands on a 6-ft high star-shaped platform with walls, pillars and ceilings adorned with intricate carvings that attest to the unique skill of the Kakatiyan sculptors.

- **Engineering Marvel** - The temple is a 13th century engineering marvel named after its architect Ramappa, who executed the work in the temple for 40 years.

- The distinct style of Kakatiyas for the gateways to temple complexes, unique only to this region confirms the highly evolved proportions of aesthetics in temple and town gateways in South India.

- A European traveler had remarked that the temple was the "brightest star in the galaxy of medieval temples of the Deccan".

Bonalu Festival

- Bonalu is a popular religious festival of the Jagadambika Temple on Golconda Fort, Telangana.

- It is the state festival of Telangana. It is celebrated in parts of Telangana and Andhra Pradesh.

- The Word Bonalu came from "Bhojanalu" meaning food, which is offered to the goddess during festival time.

- According to the Hindu calendar month of Aashadam, Bonalu festival starts with the religious procession starting from Langar Houz to the temple near Bala Hissar on top of the Golconda Fort.

- It is believed that during Ashada Maasam, the Goddess comes back to her maternal home.

- So people come to see her and bring offerings of food (Bonalu) to show their love and affection, just as they would prepare a special meal when their own daughters visit them.

Faridabad Cave Paintings

- Mangar Bani hill forests in Faridabad, Haryana will be given state protection under the Ancient and Historical Monuments and Archaeological Sites and Remains Act, 1964.
- It will be protected as this Stone Age (prehistoric) location has large number of sites with cave paintings and tools of the Palaeolithic age.
  - o The art includes what appear to be symbols, markings, some are drawings that are very old, but what exactly it is, only the archaeology department will be able to tell.
- On the basis of tool topology, this site may be from about 1,00,000 to about 15,000 years ago. But there are also found evidence of later habitation, even up to 8th-9th century AD.
- It may be one of the biggest Palaeolithic sites in the Indian subcontinent, where Stone Age tools were recovered from different open air sites as well as from rock shelters.

Indian Institute of Heritage

- This Institute will be set up by the government at Noida, Gautam Buddha Nagar. This would be a standalone Institution of its type in the country. It is being set up as Deemed to be University by integrating,
  1. Institute of Archaeology (Pt. Deendayal Upadhyaya Institute of Archaeology),
  2. School of Archival Studies under National Archives of India, New Delhi,
  3. National Research Laboratory for Conservation of Cultural Property (NRLC), Lucknow,
  4. National Museum Institute of History of Art, Conservation and Museology (NMICHM) and
  5. Academic Wing of Indira Gandhi National Centre for the Arts (IGNCA), New Delhi.
- It will be a world-class University that would focus on the conservation and research in India's rich tangible heritage.
- It will offer research, development and dissemination of knowledge, excellence in the education of its students and activities associated with heritage that contribute to cultural, scientific and economic life of India.

12.   GEOGRAPHY

Heat Dome

- The temperatures being reported from the Pacific Northwest and some parts of Canada are part of a "historic" heat wave that lasted over a week, a result of a phenomenon referred to as a "heat dome".
- Temperatures of the western Pacific Ocean have increased in the past few decades and are relatively more than the temperature in the eastern Pacific.
- This strong change in ocean temperature from the west to the east is the reason for the heat dome, which is when the atmosphere traps heat at the surface, which encourages the formation of a heat wave.
- To compare, the reason that the planet Venus is the hottest in the Solar System is because its thick, dense cloud cover traps the heat at the surface, leading to temperatures as high as 471 degree Celsius.
- A heat wave is a period of unusually hot weather that lasts for more than two days. It can occur with or without high humidity and have the potential to cover a large area, exposing many people to hazardous heat.
- To know about the US Heat Wave issue, click here.

Lightning

- At least 30 people were killed in separate incidents of lightning in Rajasthan, Uttar Pradesh and Madhya Pradesh.

- Lightning is a **very rapid and massive discharge of electricity** in the atmosphere, some of which is directed towards the Earth's surface.

- These discharges are generated in **giant moisture-bearing clouds.**
  - Height of these clouds is 10-12 km and their base lies within 1-2 km of the Earth's surface. Temperature towards the top of these clouds are in the range of (-) 35 to (-) 45 degrees Celsius.

- As water vapour moves upward in the cloud, the falling temperature causes it to condense.

- Heat is generated in the process, which pushes the molecules of water further up. As they move to temperatures below zero degrees celsius, the water droplets change into small ice crystals.

- They continue to move up, gathering mass until they are so heavy that they start to fall to Earth. This leads to a system in which smaller ice crystals move up and bigger crystals come down simultaneously.

- Collisions follow, and trigger the release of electrons - a process similar to the generation of electricity. As the moving free electrons cause more collisions and more electrons, a chain reaction ensues.

- This process results in a situation in which the top layer of the cloud gets positively charged, while the middle layer is negatively charged.

- The electrical potential difference between the two layers is huge. So, in very little time, a massive current starts to flow between the layers.

- An enormous amount of heat is produced, and this leads to the heating of the air column between the two layers of the cloud. As the reddish heated air column expands, it produces thunder.

- **Precautions** - People are most commonly struck by "ground currents" of the lightning. They should move indoors in a storm. They shouldn't take shelter under a tree or lay flat on the ground.

- **Frequency** - Lightning is the biggest contributor to accidental deaths due to natural causes. Incidents of lightning are on an increasing trend over the last 20 years, especially near the Himalayan foothills.

- More common than is sometimes realised in the urban areas. On average, India sees 2,000-2,500 lightning deaths every year.

- To know about the types of Lightning strikes, click here.

Last Ice Area

- A new study has found that the "Last Ice Area," may be more vulnerable to climate change than suspected.

- The Last Ice Area, an Arctic region known for its thick ice cover, spans more than 2,000 kms, reaching from Greenland's northern coast to the western part of the Canadian Arctic Archipelago.

- It earned its dramatic name because though its ice grows and shrinks seasonally, much of the sea ice was thought to be thick enough to persist through summer's warmth.

- But during the summer of 2020, the Wandel Sea in the eastern part of the Last Ice Area lost 50% of its overlying ice, bringing coverage there to its lowest since record-keeping began.

- **New study** - The study looked at the Wandel Sea north of Greenland, which is inside what's known as the "last ice area" of the Arctic Ocean.

- Researchers found that weather conditions were driving the decline, but climate change made that possible by gradually thinning the area's long-standing ice year after year.

- This hints that global warming may threaten the region more than prior climate models suggested.

- If the area is changing faster than expected, the Last Ice Area may not be the refuge for ice-dependent species in a future ice-free summer Arctic.

- **Anamoly 1 -** In recent decades, ocean currents have bolstered ice cover in the Last Ice Area with chunks of floating sea ice.

- But, northward winds transported ice away from Greenland and created stretches of open water that were warmed by the sun.

- The heated water then circulated under sea ice to drive even more melting.

- Scientists first suspected something might be amiss in the Last Ice Area in 2018, when a stretch of ice-ringed open water, known as a polynya.

- **Anamoly 2 -** In 2020, another sea ice anomaly in the Wandel Sea was gathered from an Arctic research expedition called The Multidisciplinary drifting Observatory for the Study of Arctic Climate (MOSAiC).

- The research vessel was taking "a strange-looking route" through areas that normally were covered in thick ice.

- Satellite observations and climate models revealed that in 2020, unusual northward-moving winds broke up sea ice and pushed it away from the Wandel Sea.

- Approximately 20% of the 2020 ice loss could be directly attributed to climate change, while 80% was linked to the wind and ocean-current anomalies, the researchers wrote.

Movements of Earth

- As Earth zooms around the sun, it also turns on its own axis about once every 24 hours (precisely, every 23 hours, 56 minutes and 4 seconds).

- Earth measures 40,070 kilometers in circumference, so when you divide distance by time, that means the planet is spinning 1,670 kmph.

- Meanwhile, Earth orbits the sun at about 110,000 km/h. It is determined by taking the distance Earth travels around the sun and dividing it by the length of time Earth takes to complete one orbit (about 365 days).

- Earth is about 149.6 million km away from the sun, and it is assumed to travel in a generally circular path (it's actually more elliptical).

- The solar system is also moving; it's located within the Milky Way, which orbits around the galaxy's center. The solar system orbits the Milky Way's galactic center at about 720,000 km/h.

- Then there's the entire Milky Way, which is pulled in different directions by other massive structures, such as other galaxies and galaxy clusters.

- For humans standing on the surface of our planet, they don't feel Earth hurtling around the sun because they're also hurtling around the sun at the same speed. There's no relative motion.

No Great Indian Bustards in Kutch Bustard Sanctuary

- The Central government informed that there was no Great Indian Bustards (GIB) in Kutch Bustard Sanctuary (KBS) in Gujarat.

- KBS near Naliya in Kutch district's Abdasa block is a tiny sanctuary notified in 1992 and spread over just 2 sqkm. But its eco-sensitive zone spread over 220 sqkm covers most of present-day core GIB habitat.

- Besides the KBS, Prajau, Bhanada and Kunathia-Bhachunda are important grasslands that are declared unclassified forests.

- Due to the barrier created by the power infrastructure on all its sides, sightings of GIB inside the KBS' notified area is becoming rare.

- **SC's intervention** - In April 2021, the Supreme Court ordered that all overhead power transmission lines in core and potential GIB habitats in Rajasthan and Gujarat should be undergrounded.

- The SC also formed a three-member committee to help power companies comply with the order.

Great Indian Bustards

- They are the largest among the four bustard species in India. Other three being MacQueen's bustard, lesser florican and the Bengal florican.

- GIBs' historic range included much of the Indian sub-continent but it has now shrunken to just 10% of it.

- Among the heaviest birds with flight, GIBs are the flagship bird species of grassland and hence barometers of the health of grassland ecosystems.

- Being **terrestrial birds**, they spend most of their time on the ground with occasional flights to go from one part of their habitat to the other.

- **Threats** - Overhead power transmission lines is the biggest threat. Others are agriculture; energy production & mining; transportation; human intrusions, and invasive and other problematic species.

- Change in landscape by way of farmers cultivating their land, which otherwise used to remain fallow due to frequent droughts in Kutch.

- Cultivation of cotton and wheat instead of pulses and fodder.

- **Conservation measures** - In 2015, the Central government launched the GIB species recovery programme.

- Under this, the Wildlife Institute of India (WII) and Rajasthan forest department have jointly set up conservation breeding centres.

- In these centres, GIB eggs harvested from the wild are incubated artificially and hatchlings raised in controlled environment.

- To know more about Great Indian Bustards, click here.

Inland Navigation

- The National Waterways (NWs) that are operational are,

    a) NW-1 (Ganga-Bhagirathi-Hooghly river system from Allahabad to Haldia),

    b) NW-2 (River Brahmaputra from Dhubri to Sadiya),

    c) NW-3 (West Coast Canal from Kottapuram to Kollam along with Udyogmandal and Champakara Canals)

- Also, NW-10 (river Amba), NW-68 (Mandovi), NW-73 (Narmada), NW-83 (Rajpuri Creek), NW-85 (Revadanda Creek-Kundalika River System), NW-91 (Shastri river-Jaigad creek system), NW-97 (Sunderbans Waterways), NW-100 (Tapi) and NW-111 (Zuari) are operational.

- Navigability of the waterway is monitored through regular hydrographic surveys and channel inspection by Regional Directorates supported by Sub-Regional Offices located along the NWs.

- A constant vigil is kept on the river regime behaviour and accordingly appropriate river conservancy measures are taken to ensure fairways for safe movement of vessels.

- Based on the observation during channel inspection and hydrographic surveys, River Notices are issued and placed on Inland Waterways Authority of India (IWAI) website.

- River Information System (RIS) aims to streamline the exchange of information between waterway operators and users to optimize traffic and transport processes in inland navigation.

- RIS has been commissioned on NW-1 (river Ganga) which is operational between Haldia-Farakka (Ph-I) and Farakka - Patna (Ph-II) stretches of the waterway.

13.   POLITY

Gender Self-identification

- The Spanish government approved the first draft of a bill that would allow anyone over the age of 14 to legally change gender without a medical diagnosis or hormone therapy.

- **Gender self-identification or 'self-id'**- It is the concept that a person should be allowed to legally identify with the gender of their choice by simply declaring so, and without facing any medical tests.

- This has been a long held demand of trans-right groups around the world, as prejudice against trans people remains rampant.

- As per the advocacy group ILGA (the International Lesbian, Gay, Bisexual, Trans and Intersex Association), 15 countries around the world recognise self-ID.

- They are Denmark, Portugal, Norway, Malta, Argentina, Luxembourg, Ireland, Greece, Costa Rica, Mexico (only in Mexico City), Brazil, Colombia, Ecuador and Uruguay.

- **Process for declaring one's sex in India** - The rights of transgender persons are governed by the Transgender Persons (Protection of Rights) Act, 2019 and the Rules, 2020.

- Under the Rules, an application to declare gender is to be made to the District Magistrate. Parents can also make an application on behalf of their child.

- There is no need for transgender persons to go through a medical examination for declaring their desired sex.

- As per the Rules, state governments have also been directed to

    1. Constitute welfare boards for transgender persons to protect their rights and interests, and

    2. Facilitate access to schemes and welfare measures framed by the Centre.

Secrecy of Vote

- The Supreme Court held that in any election, be it to Parliament or State legislature, the maintenance of secrecy of voting is "a must". It reiterated judgement in People's Union for Civil Liberties case (2013).

- It stated that Secrecy is a **part of the fundamental right** of freedom of expression. The confidentiality of choice strengthened democracy.

- In direct elections to Lok Sabha or State legislature, the secrecy of vote would ensure that a voter casts his vote without any fear or being victimised if his vote is disclosed.

- It also stated that Democracy and free elections were a **part of the Basic Structure** of the Constitution.

- [The 'basic structure' doctrine was framed in the judgment in Kesavananda Bharati vs State of Kerala case (1973).]

- The Court also said that any attempt at **booth-capturing or bogus voting** were crimes against democracy and should be dealt with iron hands, because it ultimately affects the rule of law and democracy.

National Commission for Backward Classes

- The Union Cabinet has approved the Eleventh Extension of the term of the Commission constituted under Article 340 of the Constitution by 6 months beyond 31st July 2021 up to 31st January 2022.

- [Article 340 deals with the need to identify those socially and educationally backward classes (SEBCs), understand the conditions of their backwardness, and make recommendations to remove the difficulties they face.]

- This Commission examines the issue of Sub-categorization within Other Backward Classes (OBCs) in the Central List.

- This Commission is called the National Commission for Backward Classes, which was established under the 102nd Amendment Act, 2018.

- Click here to know more about the National Commission for Backward Classes. Also, click here to know about the earlier Commissions on BC.

National Medical Commission

- It has been established by an Act of Parliament known as National Medical Commission Act, 2019. The objective of the Commission is to,

    1. Improve access to quality and affordable medical education,

    2. Ensure adequate and high-quality medical professionals in all parts of India and

    3. Provide equitable and universal health care.

- The NMC will function as the country's top regulator of medical education. It will have four separate autonomous boards for:

    1. Undergraduate medical education.

    2. Postgraduate medical education.

    3. Medical assessment and rating.

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4. Ethics and medical registration.

- **Functions** of NMC include laying down policies for

    1. Maintaining a high quality and high standards in medical education and making necessary regulations;

    2. Regulating medical institutions, researches and professionals;

    3. Assessing the requirements in healthcare and developing a road map for meeting such requirements;

    4. Coordinating and framing guidelines and laying down policies by making necessary regulations for the proper functioning of the Commission, Autonomous Boards and State Medical Councils.

- It also ensures coordination among the Autonomous Boards. It acts as appellate jurisdiction with respect to decisions of Autonomous Boards.

- It lays down policies and codes to ensure observance of professional ethics in the medical profession and promotes ethical conduct during the provision of care by medical practitioners.

- The common final year MBBS exam will now be known as the National Exit Test (NEXT), according to the new medical education structure under the NMC.

National Security Council

- The Budget allocation for the National Security Council Secretariat (NSCS) increased 10 times from ₹ 33.17 crore in 2016-17 to ₹ 333.58 crore in 2017-18.

- Formed in 1999, NSC is a three-tiered organization that oversees political, economic, energy and security issues of strategic concern.

- NSC comprises the three tier structure –

    1. Strategic Policy Group (SPG),

    2. National Security Advisory Board (NSAB) presides over the NSC, and is also the primary advisor to the Prime Minister and

    3. National Security Council Secretariat.

- To know more about the National Security Council (NSC), click here.

Electing Speaker and Deputy Speaker

- The Maharashtra Legislative Assembly has been without a Speaker for most of this year.

- The Maharashtra Governor has forwarded the demand of the Leader of Opposition to fill the post of the Speaker to Chief Minister (CM).

- The CM has responded that the Constitution and the Assembly rules do not specify a time-frame for filling a vacancy in the post of Speaker.

- **Election** - Article 93 of the Constitution for Lok Sabha and Article 178 for state Assemblies state that these Houses "shall, as soon as may be" choose two of its members to be Speaker and Deputy Speaker.

- The Constitution neither sets a time limit nor specifies the process for these elections.

- It leaves it to the legislatures to decide how to hold these elections.

- In Lok Sabha and state legislatures, the President/Governor sets a date for the election of the Speaker, and it is the Speaker who decides the date for the election of the Deputy Speaker.

- The legislators of the respective Houses vote to elect one among themselves to these offices.

- The Constitution provides that the office of the Speaker should never be empty. So, he continues in office until the beginning of the next House, except in the event of death or resignation.

97thConstitutional Amendment, 2011

- It dealt with issues related to effective management of co-operative societies in the country. It had come into effect from February 15, 2012.

- The changes made in the Constitution are,
    1. Amendment to the Article 19(1)(c) by adding the words "or cooperative societies" to expand the fundamental right to form associations or unions to cover cooperative societies too and
    2. Inserted Article 43 B and Part IX B, relating to the cooperatives.

- Recognising that 'cooperative societies' came under Entry 32 of the State List in the Seventh Schedule, the Amendment proposed to create a framework for the functioning of cooperative societies.

- State laws on cooperatives should conform to this framework.

- The 97th Constitutional Amendment empowers,
    1. Parliament to frame laws for cooperative societies that function across States (multi-State cooperative societies) and
    2. State legislatures to make laws for all other cooperative societies falling under their jurisdiction.

- The Amendment set out basic rules such as
    1. A maximum of 21 directors in a society,
    2. A fixed term of five years for elected members,
    3. A six-month cap on the time limit for which a society's board of directors can be kept under supersession or suspension, and
    4. Reservation of one seat for the Scheduled Castes or the Scheduled Tribes, and two seats for women on the board of every cooperative society, that is, every society that has members from these sections.

Chief Labour Commissioner

- Recently, Chief Labour Commissioner of India reviewed the status of sensitization and implementation of labour laws in labour codes in various developmental projects in Srinagar.

- The organization of the Chief Labour Commissioner (Central) is also known as Central Industrial Relations Machinery (CIRM).

- It is an apex organization responsible for maintaining harmonious industrial relations mainly in the sphere of central Government.

- In pursuance of the recommendation of the Royal Commission on Labour in India, the organization was set up in April, 1945 by combining,
    1. The former organizations of the conciliation Officer (Railways),
    2. The Supervisor of Railway Labour and
    3. The Labour Welfare Advisor.

- **Duties** - It was then charged mainly with duties of
    1. Prevention and settlement of industrial disputes,
    2. Enforcement of labour laws and
    3. Promotion of welfare of workers in the industrial establishments falling within the sphere of the Central Government.

Anti-Trafficking Bill, 2021

- The Ministry of Women and Child Development placed the Trafficking in Persons (Prevention, Care and Rehabilitation) Bill, 2021, in the public domain to get stakeholders' comments.

- **Investigating and coordinating agency** - The Bill empowers the National Investigation Agency (NIA) to carry out investigation and prosecution in cases of trafficking, including child-trafficking.

- **Definition** - The Bill does away with the provision that a victim necessarily needs to be transported from one place to another to be defined as a victim.

- It extends beyond the protection of women and children as victims to now include transgenders as well as any person who may be a victim of trafficking.

- It defines 'Exploitation' of the prostitution or other forms of sexual exploitation, any act of physical exploitation, forced labour or services, slavery or practices similar to slavery, servitude or forced removal of organs, illegal clinical drug trials or illegal bio-medical research.

- Offenders will also include defence personnel and government servants, doctors and paramedical staff or anyone in a position of authority.

- **Categorisation** - The Bill categorises offences into trafficking and aggravated forms of trafficking, with

  o The trafficking carrying a maximum punishment of 10 years in jail and fine of ₹1 lakh and

  o The aggravated forms of trafficking carrying death penalty and fine of upto ₹30 lakh.

- It expects a tribal or a dalit migrant worker to take on his employer.

- **Sex Workers** - The Bill equates sex work with sexual exploitation, and it renders the consent of a sex worker immaterial in the determination of whether she was trafficked or practising sex work of her own volition.

- **Rehabilitation** - The Bill says that there is no need for the consent while rescuing, rehabilitating or repatriating a person.

- It provides for an institution-based rehabilitation instead of family and community based rehabilitation.

- **Applicability** - It extends to all citizens inside as well as outside India,

  o Persons on any ship or aircraft registered in India wherever it may be or carrying Indian citizens wherever they may be,

  o A foreigner or a stateless person who has his or her residence in India at the time of commission of offence under this Act, and

- It will apply to every offence of trafficking in persons with cross-border implications.

- **National Anti-Human Trafficking Committee** - This Committee will be established by the Centre for ensuring overall effective implementation of the provisions of this law.

- It will have representation from various ministries with the Home Secretary as the chairperson and secretary of the women and child development ministry as co-chair.

- State and district level anti-human trafficking committees will also be constituted.

14. GOVERNMENT INITIATIVES

Tele-Law Programme

- The Department of Justice commemorates the milestone of crossing nine lakh beneficiaries under its Tele-Law programme. It saw a surge of 369% growth in number of beneficiaries seeking legal advice during last year.

- [Tele-Law means the use of Information and Communications Technology (ICT) for the delivery of legal information and advice.]

- The Tele-Law programme connects the disadvantaged and needy seeking legal advice from Panel Lawyers through e-interface platform available in Common Service Centres (CSCs).

- It was launched by the Ministry of Law and Justice in collaboration with the Ministry of Electronics and Information Technology (MeitY) in 2017 to address cases at the pre-litigation stage.

- For implementing the Tele-Law programme, the Department of Justice has partnered with National Legal Services Authorities (NALSA) and CSC e-Governance Service India Limited.

- The concept of Tele-Law is to facilitate delivery of legal advice through a panel of lawyers stationed at the state LSA (SALSA) and CSC.

- It connects citizens with lawyers through video conferencing facilities by the Para-Legal Volunteers stationed at identified 50,000 CSCs.

- The service is free for those who are eligible for free legal Aid as mentioned under Section 12 of the Legal Services Authority Act, 1987. For all others a nominal fee is charged.

- Tele-Law programme is presently operational in 633 districts, including 115 Aspirational Districts across 28 States and 6 Union Territories.

Open Network for Digital Commerce

- Department for Promotion of Industry and Internal Trade (DPIIT) has initiated a project on Open Network for Digital Commerce (ONDC).

- The task has been assigned to the Quality Council of India (QCI).

- ONDC aims at promoting open networks developed on open sourced methodology, using open specifications and open network protocols independent of any specific platform.

- It will digitize the entire value chain, standardize operations, promote inclusion of suppliers, derive efficiencies in logistics and enhance value for consumers.

- An advisory council has been constituted to advise the Government on measures needed to design and accelerate adoption of ONDC.

Defence Industrial Corridors

- The Central Government established two Defence Industrial Corridors (DICs), one each in Uttar Pradesh (U.P.) and Tamil Nadu (T.N.) respectively.

    1. Uttar Pradesh U.P.DIC (UPDIC) has six identified nodes viz. Agra, Aligarh, Chitrakoot, Jhansi, Kanpur and Lucknow.

    2. Tamil Nadu DIC (TNDIC) has five identified nodes viz. Chennai, Coimbatore, Hosur, Salem and Tiruchirappalli.

- To facilitate public/private sector for the investment in the two DICs, both State Governments have acquired lands at the identified nodes.

- The nodal agencies of the UPDIC and TNDIC are UP Expressways Industrial Development Authority (UPEIDA) and TN Industrial Development Corporation (TIDCO), the nodal agency respectively.

- The production of armament/ammunition; components of aerospace industries; missile systems; and establishment of research & development facilities has been envisaged in the two DICs.

- **Significance** - The establishment of the DICs may provide a fillip to the defence manufacturing ecosystem through synergistic development of technologies, promote growth of private domestic manufacturers.

Green Hydrogen Mobility Project

- Renewable Energy Ltd (REL), a 100% subsidiary of NTPC, signed a MoU with Union Territory of Ladakh and LAHDC to setup the country's first Green Hydrogen Mobility project in the region.

- This Project will enable NTPC to help Ladakh develop a carbon free economy based on renewable sources and green hydrogen.

- With this Project, Leh is soon to become India's first city to implement a green hydrogen based mobility project with zero emission.

- NTPC has been promoting usage of green hydrogen based solutions in sectors like mobility, energy, chemical, fertilizer, steel etc. It has recently doubled its target to achieving 60GW renewables capacity by 2032.

Centre for Advanced Transportation Technology & Systems

- Centre for Advanced Transportation Technology and Systems (CATTS) will be set up at Indian Academy of Highway Engineers (IAHE), Noida, with the help of University of New South Wales (UNSW), Australia.

- [IAHE comes under the control of the Ministry of Road Transport & Highways (MORTH).]

- The UNSW will help the IAHE in terms of capacity building, technology transfer and creation of enabling environment to establish CATTS.

- It will also deliver a course, certified by it, on smart transport systems and modelling.

- The broad scope of CATTS is in the following areas:
    1. Building India specific Macro Model (Computable Equilibrium Model) for entire Nation Highway network and in-principle National Highways by UNSW, including coding of simulation software, calibration & validation and scenario analysis.
    2. Building India specific Urban Pervasive Data Model for City by UNSW including coding of simulation software, calibration & validation and scenario analysis.
    3. A course certified by UNSW on smart transportation systems and modelling will be delivered by UNSW in the form of 3 workshops in India and 3 workshops in Australia.
- It will also promote industries and startups from Australia and India in the transportation sector, including opportunities for innovation, research and development of advanced transport systems.

Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive (PRASHAD) Scheme

- Prime Minister inaugurated development projects in Varanasi like,
    o Tourist Facilitation Centre under the Project "Development of Varanasi Under PRASHAD Scheme - Phase II" and
    o Operation of Cruise Boat from Assi Ghat to RajGhat under the Project "Development of River Cruise in Varanasi under PRASHAD Scheme".
- Both of these projects were approved by the Ministry of Tourism in 2018.
- The 'National Mission on Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive' (PRASHAD) is a Central Sector Scheme fully financed by the Government of India.
- This scheme was launched as PRASAD by the Ministry of Tourism in 2014-15 with the objective of integrated development of identified pilgrimage destinations.
- The name was changed from PRASAD to PRASHAD in 2017 with the objective of holistic development of identified pilgrimage destinations.
- The PRASHAD scheme aimed at infrastructure development such as entry points (Road, Rail and Water Transport), last mile connectivity, basic tourism facilities etc.
- After the discontinuation of the HRIDAY scheme of the Housing and Urban Development Ministry, the development of Heritage destinations was included in the PRASAD Scheme, changing it to PRASHAD.
- **Implementation Agency** - The projects identified under the PRASHAD scheme shall be implemented through the identified agencies by the respective State/ Union Territory Government.
- **Objectives** of the scheme are,
    1. Rejuvenation and spiritual augmentation of important national/ global pilgrimage and heritage sites.
    2. Follow community-based development and create awareness among the local communities.
    3. Integrated tourism development of heritage city, local arts, culture, handicrafts, cuisine, etc., to generate livelihood.
    4. Strengthen the mechanism for bridging the infrastructural gaps.

Swadesh Darshan Scheme

- Swadesh Darshan is a Central Sector Scheme, which was launched by the Ministry of Tourism and Culture in 2014 -15 for integrated development of theme based tourist circuits in the country.
- Under the Swadesh Darshan scheme, 15 thematic circuits have been identified for development.
- The 15 theme based circuits are Himalayan, North-East India, Coastal, Desert, Tribal, Eco, Wildlife, Rural,

Tourist Circuit

- It is defined as a route having at least three major tourist destinations which are distinct and apart.
- They should have well defined entry and exit points. A tourist who enters should get motivated to visit most of the places identified in the circuit.
- A Circuit could be confined to a State or could be a regional circuit covering more than one State/Union Territory.
- These circuits may have one dominant theme and other sub-themes.

Buddhist, Tirtankar, Krishna, Sufi, Ramayana, Spiritual, Circuit and Heritage Circuit.

- Under the scheme, the Ministry of Tourism provides Central Financial Assistance (CFA) to State Governments/Union Territory Administrations for infrastructure development of circuits.

- This scheme is envisioned to synergise with other schemes like Swachh Bharat Abhiyan, Skill India, Make in India etc.

- It has the idea of positioning the tourism sector as a major engine for job creation, driving force for economic growth, building synergy with various sectors to enable tourism to realise its potential.

SMILE Scheme

- Ministry of Social Justice and Empowerment has framed the SMILE scheme (Support for Marginalized Individuals for Livelihood and Enterprise scheme).

- This Scheme includes a sub scheme - 'Central Sector Scheme for Comprehensive Rehabilitation of persons engaged in the act of Begging'.

- This Scheme covers several comprehensive measures including welfare measures for persons who are engaged in the act of begging.

- The focus of the scheme is extensively on rehabilitation, provision of medical facilities, counselling, basic documentation, education, skill development, economic linkages and so on.

- **Implementation** - The scheme would be implemented with the support of State/UT Governments/Local Urban Bodies, Voluntary Organizations, Community Based Organizations (CBOs) and others.

- **Shelter Homes** - Scheme provides for the use of the existing shelter homes available with the State/UT Governments and Urban local bodies for rehabilitation of the persons engaged in the act of Begging.

- In case of non-availability of existing shelter homes, new dedicated shelter homes are to be set up by the implementing agencies.

- **Pilot projects** are initiated on Comprehensive Rehabilitation of Persons engaged in the act of Begging in ten cities.

- The ten cities are Delhi, Bangalore, Chennai, Hyderabad, Indore, Lucknow, Mumbai, Nagpur, Patna and Ahmadabad.

Pradhan Mantri Gram Sadak Yojana

- Pradhan Mantri Gram Sadak Yojana (PMGSY) was launched as a one-time special intervention to provide **rural connectivity**, by way of a single all-weather road.

- **Main features of PMGSY** -
    1. Decentralized and evidence based planning, standards and specifications as per Indian Road Congress (IRC) and Rural Roads Manual,
    2. Dedicated implementation mechanism at central, state and district level,
    3. Scrutiny of Detailed Project Reports (DPRs) at multiple levels,
    4. Strong IT backbone for monitoring and implementation of the programme,
    5. Three-tier quality management system, unbroken flow of funds,
    6. Inbuilt mechanism for consultation with public representatives at planning, selection of roads and monitoring stages, etc.

- Rural connectivity is provided to the eligible unconnected habitations of designated population size in the core network for uplifting the socio-economic condition of the rural population.
    o Population size is 500+ in plain areas and 250+ in North-Eastern States, Himalayan States and Himalayan Union Territories (as per the 2001 Census).

- **Relaxation** has been provided to the Tribal (Schedule V) areas and Selected Tribal and Backward Districts (as identified by the Ministry of Home Affairs and the Planning Commission)

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o Unconnected habitations in these areas with a population of 250 persons and above in the Core Network are eligible for connectivity

- In the critical Left Wing Extremism affected blocks (identified by Ministry of Home Affairs), additional relaxation has been given to connect habitations with population 100 persons and above.

- **PMGSY- II** was launched in 2013, with a target to upgrade 50,000 Kms of the existing rural road network to improve its overall efficiency as a provider of transportation services for people, goods and services.

- **RCPLWEA** - Road Connectivity Project for Left Wing Extremism Affected Areas (RCPLWEA) was launched in 2016.

- It was launched for construction/upgradation of strategically important roads chosen in the 44 worst affected LWE districts and adjoining districts in the 9 States.

- [Nine States - Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Telangana and Uttar Pradesh.]

- **PMGSY-III** (2019) was launched for consolidation of 1,25,000 Km through Routes and Major Rural Links connecting habitations, to Gramin Agricultural Markets (GrAMs), Higher Secondary Schools and Hospitals.

- The implementation period of PMGSY-III is up to March, 2025.

National Livestock Mission

- National Livestock Mission (NLM) proposes to bring sharp focus on entrepreneurship development and breed improvement in rural poultry, sheep, goat and piggery including feed and fodder development.

- It was launched to ensure quantitative and qualitative improvement in livestock production systems and capacity building of all stakeholders in 2014-15.

- It is being implemented as a sub scheme of White Revolution - Rashtriya Pashudhan Vikas Yojana from April 2019.

- The NLM is organised into the following four Sub - Missions:
    1. Sub -Mission on Livestock Development,
    2. Sub - Mission on Pig Development in North-Eastern Region,
    3. Sub - Mission on Feed and Fodder Development and
    4. Sub -Mission on Skill Development, Technology Transfer and Extension.

- Rural Poultry Entrepreneurship component will give direct employment to 1.5 lakh farmers for sheep goats and poultry development.

- Livestock Census and Integrated Sample Survey component will support states for undertaking Livestock Census and for bringing out production estimates of milk, meat, egg and wool.

- Livestock Health and Disease Control will be implemented to,
    1. Reduce risk to animal health by prophylactic vaccination against diseases of livestock and poultry,
    2. Capacity building of Veterinary services, disease surveillance and strengthening veterinary infrastructure.

- During the next 5 years, Mobile veterinary clinics will be set up to deliver animal health services at doorstep of farmers engaged in Animal Husbandry.

National Project on Organic Farming

- National Project on Organic Farming (NPOF) is a Central Sector Scheme approved by the 10th Five Year Plan. The objectives of the NPOF are,
    1. Promotion of organic farming in the country through technical capacity building of all the stakeholders.
    2. Statutory quality control of bio-fertilizers and organic fertilizers under the Fertilizer (Control) Order (FCO), 1985.

3. Capacity building for soil health assessment, organic input resource management, technology development through support to research and market development.

4. Capacity Building for low cost certification system known as "Participatory Guarantee System".

- **Implementation** - NPOF is being implemented by National Centre of Organic Farming at Ghaziabad and its six Regional Centres at Bangalore, Bhubaneshwar, Hisar, Imphal, Jabalpur and Nagpur.

- Besides working for realisation of targets under NPOF, NCOF and RCOFs also performs specific roles in promotion of organic farming.

- **CISS** - The Capital investment Subsidy Scheme (CISS) is a sub scheme under the National Project on Organic Farming (NPOF).

- Under CISS, 100% assistance is provided to State Government / Government agencies for setting up of mechanized fruit/vegetable market Agro waste compost production unit up to a maximum limit of Rs.190.00 lakh /unit (for 3000 Total Per Annum (TPA) capacity).

- For individuals/ private agencies, assistance up to 33% of cost limit to Rs 63 lakh/unit as capital investment is provided.

Honey Mission Programme

- This mission was launched in 2017-18 by Khadi & Village Industries Commission (KVIC), under the Ministry of MSME.

- This mission promote Bee Keeping activities and provide self-sustaining employment opportunities among farmers, Adivasies and unemployed youth in rural India, mainly in economically backward and remote areas.

- Launched in 2017 in line with the 'Sweet Revolution', the mission provided with Bee Boxes, live bee colonies, tool kits and training to the beneficiaries.

- [The 'Sweet Revolution' was launched in 2016 to promote beekeeping and associated activities.]

PM CARES for Children Scheme

- Ministry of Women and Child Development has launched the web based portal 'PM CARES for Children' scheme.

- The portal's aim is to facilitate submission of applications, identification of children eligible to receive support, etc.

- **PM CARES for Children** Scheme,announced by the Prime Minister, aims to ensure comprehensive care and protection of children who have lost their parents to COVID pandemic, in a sustained manner.

- **Eligibility** - All children who have lost

    1. Both parents or

    2. Surviving parent or

    3. Legal guardian/adoptive parents due to COVID 19 pandemic, starting from 11.03.2020 till the end of pandemic, shall be entitled to benefits under this scheme.

- **Fixed Deposit in the child's name** - PM CARES will contribute through a specially designed scheme to create a corpus of Rs 10 lakh for each child when s/he reaches 18 years of age.

- This corpus will be used to give a monthly financial support/ stipend from 18 years of age, for the next five years to take care of his or her personal requirements during the period of higher education.

- On reaching the age of 23 years, s/he will get the corpus amount as one lump-sum for personal and professional use.

- **School Education** - Child under 10 years will be given admission in the nearest Kendriya Vidyalaya or in a private school as a day scholar.

- Child between 11-18 years will be admitted in any Central Government residential school such as Sainik School, Navodaya Vidyalaya etc.

- In case the child is to be continued under the care of Guardian/ grandparents/ extended family, then s/he will be given admission in the nearest Kendriya Vidyalaya or in a private school as a day scholar.

- If the child is admitted in a private school, the fees as per the RTE norms will be given from the PM CARES. The expenditure on uniform, text books and notebooks will also be paid under PM CARES.

- **Support for Higher Education** - The child will be assisted in obtaining education loan for Professional courses / Higher Education in India as per the existing Education Loan norms.

- The interest on this loan will be paid by the PM CARES.

- As an alternative, scholarship equivalent to the tuition fees / course fees for undergraduate/ vocational courses as per Government norms will be provided to such children under Central or State Government Schemes.

- For children who are not eligible under the existing scholarship schemes, PM CARES will provide an equivalent scholarship.

- **Health Insurance** - All children will be a beneficiary under Ayushman Bharat Scheme (PM-JAY) with a health insurance cover of Rs. 5 lakhs.

- The premium amount for these children till the age of 18 years will be paid by PM CARES.

Catch the Rain Project

- Recently, the Ministry of Jal Shakti launched a campaign "Jal Shakti Abhiyan: Catch the Rain" (JSA:CTR) with the tag line "Catch the rain, where it falls, when it falls".

- This campaign was aimed at giving a nudge to the states and all stakeholders to create Rain Water Harvesting Structures (RWHS) suitable to the climatic conditions and sub-soil strata.

- The Ministry has taken up the campaign to cover all the blocks of all districts across the country during the pre-monsoon and monsoon period (22nd March 2021 and 30th November 2021).

- As a part of the campaign, the following activities will be taken up,

    1. Creation of new and maintenance of old Rainwater harvesting structures;

    2. Revival of traditional rainwater harvesting structures;

    3. Enumeration, geo-tagging, making inventory of water bodies, reuse and recharge of bore wells;

    4. Watershed development, intensive afforestation preparation of scientific water conservation plans and

    5. Setting up of Jal Shakti Kendras.

Sub-Mission on Agricultural Mechanization

- The Ministry of Agriculture and Farmers Welfare launched the Centrally Sponsored Scheme 'Sub-Mission on Agricultural Mechanization' (SMAM) in 2014-15.

- **Purpose** - The aim is to increase the reach of farm mechanization to small and marginal farmers and to the regions and difficult areas where farm power availability is low.

- Under it, subsidy is provided for purchase of various types of agricultural equipment and machinery,

    1. For States other than North Eastern Region (NER) States, the subsidy is to the extent of 40-50% and

    2. For NER States, it is 100% limited to Rs.1.25 lakhs per beneficiary.

- **Implementation** - The SMAM is being implemented by the Department of Agriculture and Farmers Welfare with effect from 2014-15. The scheme is implemented by the respective State Governments.

- The Department has also developed a Farm Machinery Direct Benefit Transfer (FMDBT) portal for implementing SMAM. Farmers can register on this portal through online registration.

- **Objectives** - Using the central grants provided under the SMAM, the States distribute machines to farmers.

- To establish Custom Hiring Centres, Hi-tech hubs and Farm Machinery Banks to make machines and equipments available to farmers on rental basis.

- To create awareness among stakeholders through demonstration and capacity building activities.

- To ensure performance testing and certification of agricultural machines at designated testing centres located all over the country.

National Policy for Rare Diseases 2021

- National Policy for Rare Diseases, 2021 aims at lowering the incidence and prevalence of rare diseases based on an integrated and comprehensive preventive strategy encompassing,

  1. Awareness generation,

  2. Premarital, post-marital, pre-conception and post-conception screening and counselling programmes to prevent births of children with rare diseases, and

  3. Enabling access to affordable health care to patients of rare diseases.

- To know more about the Union Ministry of Health and Family Welfare's National Policy for Rare Diseases, 2021, click here and here.

SRIJAN Portal

- Launched in 2020, this indigenization portal was developed by the Department of Defence Production.

- This portal provides information regarding the defence equipment and items which are being imported currently or to be imported by the Defence PSUs in the country.

- It is a one stop shop online portal that provides access to the vendors to take up items that can be indigenized. Then the government will take proper measures regarding making these products indigenized.

- The Indian industry has shown interest for indigenization of 2880 displayed items on this portal so far.

'Make' Procedure of Capital Procurement

- The 'Make' Procedure of capital procurement has been simplified.

- **Make-I** - There is a provision for funding upto 70% of development cost by the Government to Indian industry under Make-I category.

- In addition, there are specific reservations for MSMEs under the 'Make' procedure.

- **Make-II** - Introduced in DPP 2016, the procedure for 'Make-II' category (Industry funded) encourages indigenous development and manufacture of defence equipment.

- It has number of industry friendly provisions such as relaxation of eligibility criterion, minimal documentation, provision for considering proposals suggested by industry/individual etc.

Defence Investor Cell

- It has been created in 2018 under the Department of Defence Production, Ministry of Defence.

- It acts as a single point of contact and provides all necessary information including addressing queries related to investment opportunities, procedures and regulatory requirements for investment in the sector.

Technology Development Fund (TDF)

- This fund has been established in 2019 to promote self-reliance in Defence Technology as a part of the 'Make in India' initiative.

- It is a programme of Ministry of Defence executed by DRDO meeting the requirements of Tri-Services, Defence Production and DRDO.

- TDF programme covers the following technology development in terms of,

  1. Significant up-gradation/improvements/ further developments in the existing products/process/application etc

  2. Technology readiness level up-gradation from TRL3 onwards to realization of products as per Tri-Services requirements

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3. Development of futuristic technologies/innovative products which can be useful for the defence applications

4. Import substitution of components whose technologies doesn't exist with the Indian industry

- **Features** - The scheme will be limited to development of technologies or prototype of product having potential use for the Services and typical development period of two years.

- It encourages participation of public/private industries so as to create an eco-system for enhancing cutting edge technology capability for defence application.

- It will cover funding through provision of grants to industry that may work in collaboration with academia or research institutions to carry out innovation, research and development.

- Such chosen entities will be referred to as Development Agencies (DAs).

- In cases where academia or research institutions are involved, their work involvement cannot exceed 40% of the total effort required.

- **Eligibility for TDF**- Indian private and public industries, including MSMEs and Startups registered in India.

- Public limited company, private limited company, partnership firms, limited liability partnership, one-person company, sole proprietorship registered as per applicable Indian laws.

- Industry to be owned and controlled by a resident Indian Citizen with a shareholding of at least 51%

- **Fiscal Incentive** - Projects up to INR 10 Crores are eligible for funding; subject to a maximum of 90% of the entire cost of the project. However, 100% of funding may be considered on a case-to-case basis.

- In the event of research organisations or academia being involved in the work, their contribution is limited to 40% of the efforts.

PM SVANidhi Scheme

- Pradhan Mantri Street Vendors' Atma Nirbhar Nidhi Scheme (PM SVANidhi) is a Central Sector Scheme.

- This scheme aims to facilitate **collateral-freeworking capital loan** of up to ₹ 10,000 of 1 year tenure to Street Vendors, vending in urban areas, to resume their businesses, adversely impacted by the pandemic.

- On prepayment or repayment, they are eligible for an enhanced working capital loan of upto ₹ 20,000 and ₹ 50,000 in the second and third tranches respectively.

- **Implementation** - It is being implemented by the Ministry of Housing and Urban Affairs (MoHUA) since June, 2020.

- The Small Industries Development Bank of India (SIDBI) is the scheme's implementation agency.

- **Eligibility** - Street Vendors engaged in vending in urban areas as on or before March 24, 2020 are eligible for benefit under SVANidhi Scheme.

- The eligible vendors are identified as per following criteria:

   1. Street vendors in possession of Certificate of Vending / Identity Card issued by Urban Local Bodies (ULBs);

   2. The vendors, who have been identified in the survey but have not been issued Certificate of Vending / Identity Card;

   3. Street Vendors, left out of the ULB led identification survey or who have started vending after completion of the survey and have been issued Letter of Recommendation (LoR) to that effect by the ULB / Town Vending Committee (TVC); and

   4. Vendors of surrounding development/peri-urban /rural areas vending in the geographical limits of ULBs and have been issued Letter of Recommendation (LoR) to that effect by the ULB/ TVC.

- The scheme is valid until March 2022.

Clone Train Scheme

- Indian Railways is keeping a close watch on the occupancy and waitlist position of these special trains and is operating "Clone trains", on routes where traffic demand is high.

- A 'clone' train will run as an alternative to an actual train and this train will have the number of the actual train.

- Such train will be operated only if there are a large number of passengers on the waiting list of a particular train.

- Only waitlisted passengers will be accommodated on a 'clone' train.

- Passengers on the waiting list shall be informed about their berths or seats on a 'clone' train after reservation charts of the actual train is released or four hours before departure.

- **Similarity** - This scheme is similar to the 'Vikalp' scheme under which waitlisted passengers are accommodated in another train on the same route, regardless of booking quota and concession.

- However, in the case of 'Vikalp' scheme, instead of the original boarding and destination stations, nearby boarding and destination stations may be allotted to the passengers.

Boosting Production of Pulses

- The seed minikits of pulses are distributed to the farmers of major pulse growing States under the National Food Security Mission (NFSM).

- [National Food Security Mission (NFSM) aims to increase production of rice, wheat, pulses, coarse cereals and commercial crops, oil seeds and oil palm through area expansion and productivity enhancement.]

- The district wise allocation and distribution of seed minikits is managed by the respective State Governments.

- Under NFSM, the States transfer the benefit to the targeted beneficiaries through Direct Benefit Transfer (DBT) by using Aadhar enabled system.

- Production and productivity of pulses under seed minikits programme is primarily monitored by State Government field functionaries and State Food Security Mission Executive Committee (SFSM-EC).

- [SFSM-EC is headed by Chief Secretary/Agriculture Production Commissioner.]

- Field visits of seed minikits fields are undertaken by National Level Monitoring Teams (NALMOTS) constituted by Agriculture Department.

15. BILATERAL RELATIONS

Output Pact Proposal

- The latest round of meetings among the OPEC+ group has stalled as the UAE has pushed back proposals making an increase in crude oil supply conditional on an extension to an output agreement.

- [**OPEC+ countries** are non-OPEC countries which export crude oil. They are Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan and Sudan.]

- **Story behind** - In April 2020, the OPEC+ group of countries had entered into a two-year agreement to cut crude production steeply - to deal with a sharp fall in the price of oil as a result of the pandemic.

- The initial production cut by OPEC+ was about 10 million barrels per day or about 22% of the reference production of OPEC+ nations.

- In November 2020, however, the price of Brent crude started climbing consistently buoyed by the steady rollout of vaccination programmes.

- However, it maintained lower levels of production despite crude oil prices reaching pre-Covid levels, which boosted rising prices further.

- **Recent issue** - The UAE agreed that there was a need to increase crude oil production from August 2021.

- But it didn't agree to a condition by the OPEC Joint Ministerial Monitoring Committee (JMMC) that the two-year production agreement be extended by six months.

- The UAE noted that the baseline reference production levels of crude oil were unfair and that it would be open to extending the agreement if baseline production levels were reviews to be fair to all parties.

Organisation of the Petroleum Exporting Countries

- It is a permanent intergovernmental organization of 13 oil-exporting developing nations.

- It was founded in 1960 by five countries - Islamic Republic of Iran, Iraq, Kuwait, Saudi Arabia and Venezuela.

- In accordance with its Statute, the mission of the OPEC is to coordinate and unify the petroleum policies of its Member Countries.

- It should ensure the stabilization of oil markets in order to secure an efficient, economic and regular supply of petroleum to consumers.

White Flag Campaign

- In Malaysia, some residents of low-income families have started waving white flags as part of the "White Flag (benderaputi) Campaign".

- They are doing this to convey distress about the financial crunch they have had to deal with amid the lockdowns due to Covid-19.

- As part of the movement, families that are facing hunger or need any other kind of assistance are encouraged to wave a white flag or put a piece of white cloth outside their homes to signal that they need help.

- The idea is that by spotting the white flag, neighbours and good samaritans can reach them.

- On the Sambal SOS app, which was initially called the Bendera Putih app, people can see the map of Malaysia where active food banks are marked. This is to help people easily track down food banks.

Red Flag Campaign

- There is yet another movement called the red flag campaign or #benderamerah that works in the same way as the white flag movement.

- It was started by the Malaysian Animal Association as many families were abandoning pets they couldn't afford to feed.

Black Flag Movement

- Alongside the white flag movement, there is the black flag movement in order to express dissatisfaction of the public with the Malaysian government against the government's management of the pandemic.

- Specifically, this movement is demanding that Prime Minister resign.

16.   ECONOMY

RBI Retail Direct Scheme

- RBI announced that the 'RBI Retail Direct Scheme', a one-stop solution to facilitate investment in Government Securities (G-secs) by retail investors (individuals).

- Under the scheme, the investors will have the facility to open and maintain the 'Retail Direct Gilt Account' (RDG Account) with the RBI.

- [A "Gilt Account" means an account opened and maintained for holding Government securities. Instead of money, the account is debited or credited with treasury bills or government securities.]

- RDG account can be opened through an online portal provided for the purpose of the scheme. The online portal will give registered users access to primary issuance of G-secs and access to Negotiated Dealing System-Order Matching system (NDS-OM).

- [NDS-OM is an electronic, screen-based, anonymous, order-driven trading system for dealing in government securities. It was introduced by the RBI in 2005.]

Retail Investor

- They are non-professional investors who buy and sell securities or funds that contain a basket of securities such as mutual funds and exchange traded funds (ETFs).

- They execute their trades through traditional or online brokerage firms.

- They purchase securities for their own personal accounts and often trade in dramatically smaller amounts as compared to institutional investors.

Institutional Investor

- It is an umbrella term for larger-scale investments by professional portfolio and fund managers.

- They are the big players in the market who move big money.

- Examples - Pension funds, Mutual funds, Money managers, Insurance companies, Investment banks, Commercial trusts, Endowment funds for a university or college, Hedge funds, Private equity firms or investors, etc

India's Economic Situation

- Over the past few weeks, Indians have become more and more worried about the inflation rate (or the rate at which prices are rising).

- **Retail inflation** for May 2021 was at 6.3% i.e., 30 basis points above the highest level of inflation that RBI targets. No other Asian country has faced the high levels of inflation that India is becoming used to.

- [Retail inflation is measured by using the Consumer Price Index.]

- The Retail inflation data for June will be crucial in determining RBI's monetary policy stance when it meets in August, 2021.

- In 2022, consumer prices will grow at a rate that is around 2 ½ times more than the rest of Asia's average.

- **Oil prices** have been high and rising for two broad reasons.

  o Rising prices of imported crude oil (India depends on oil imports to meet more than 80% of its domestic requirement) and

  o Taxation of refined fuel within the country.

- For every 10% increase in oil prices, economic growth of India falls by 20 basis points and the inflation rate goes up by 40 basis points.

- Even when crude oil prices went down, retail prices have stayed up due to the way the government taxes petrol and petroleum products.

- Besides the price rise in fuel, the prices of the food and non-food goods have shot up.

- **Unemployment** - India's unemployment rate is so much higher than other Asian countries. India's high unemployment rate is despite a low labour force participation rate.

- Total number of people employed in the Indian economy is over 5% less than the number of people employed before the pandemic. So, instead of creating jobs, the economy has extinguished close to 22 million jobs.

RBI's Data Localisation Policy

- The RBI has banned the U.S. card-issuer Mastercard from issuing new debit and credit cards to customers in India as Mastercard has failed to comply with the RBI's local data storage rules announced in 2018.

- [Data localisation is storing of data on a device physically present within the borders of the country where the data was generated.]

- As per the RBI's rules, foreign card companies had to store complete information about transactions made by all Indian customers in servers located within India.

- In April, 2018, the RBI gave six months time to global payment companies to comply with these rules.

- To know more about RBI's Data Localisation Policy, click here.

Modifications to Agriculture Infrastructure Fund

- The Union Cabinet gave its approval to the following modifications in Central Sector Scheme of Financing Facility under 'Agriculture Infrastructure Fund (AIF)'.

- **Eligibility** has now been extended to State Agencies/APMCs, National & State Federations of Cooperatives, Federations of Farmers Producers Organizations (FPOs) and Federations of Self Help Groups (SHGs).

- **Interest subvention** - At present Interest subvention for a loan upto Rs. 2 crore in one location is eligible under the scheme.

- In case, one eligible entity puts up projects in different locations then all such projects will be now be eligible for interest subvention for loan upto Rs. 2 crore.

- **Limitation** - However, for a private sector entity there will be a limit of a maximum of 25 such projects.

- This limitation will not be applicable to state agencies, national and state federations of cooperatives, federations of FPOs and federation of SHGs.

- Location will mean physical boundary of a village or town having a distinct LGD (Local Government Directory) code. Each of such projects should be in a location having a separate LGD code.

- For APMCs, interest subvention for a loan upto Rs. 2 crore will be provided for each project of different infrastructure types.

- **Power** has been delegated to Union Agriculture Minister to make necessary changes with regard to addition or deletion of beneficiary.

- **Period** of financial facility has been extended from 4 to 6 years upto 2025-26 and overall period of the scheme has been extended from 10 to 13 upto 2032-33.

Blue Economy

- In the years to come, India aims to target over 100 billion "Blue Economy" through its Deep Ocean Mission (DOM) and ocean resources.

- The Center for the Blue Economy says that the term 'blue economy' has related but distinct meanings-

    1. The overall contribution of the oceans to economies,

    2. The need to address the environmental and ecological sustainability of the oceans, and

    3. The ocean economy as a growth opportunity for both developed and developing countries.

- According to the World Bank, the blue economy is the "sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem."
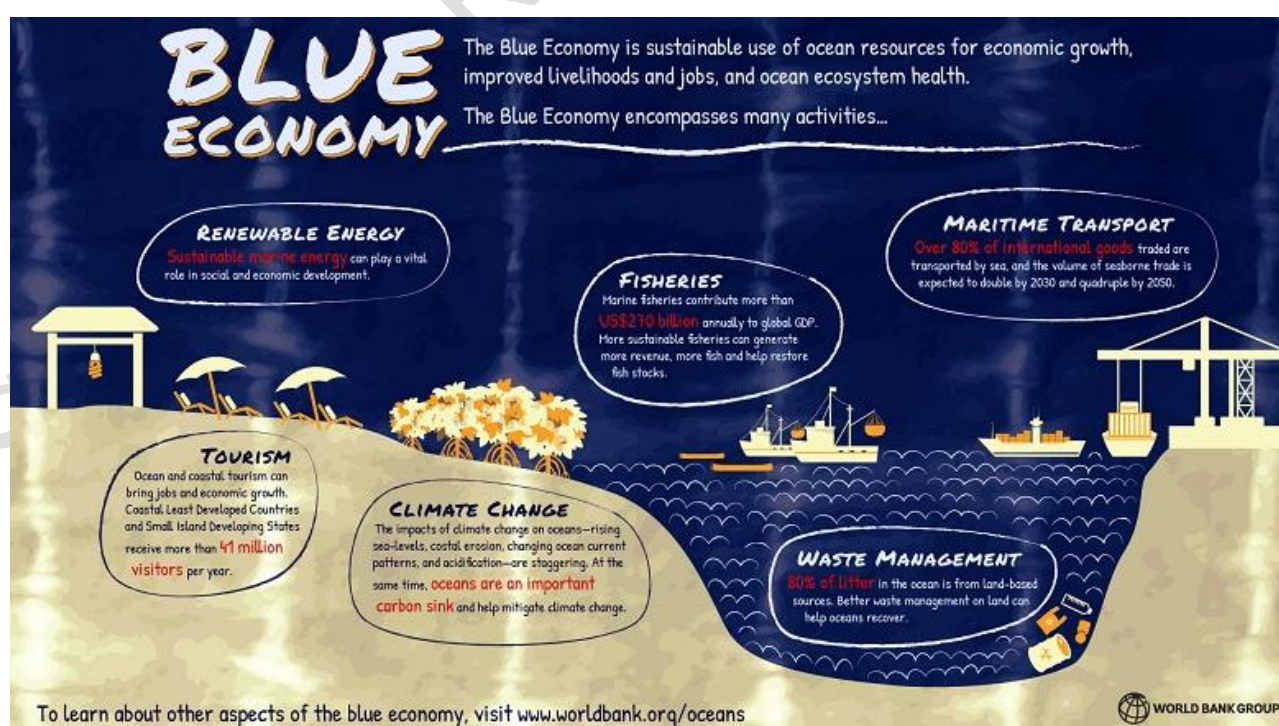
Deep Ocean Mission

- This Mission planned by the Ministry of Earth Sciences will be carried out in collaboration with Indian Space Research Organisation (ISRO).

- It will integrate and bring together the efforts of the different streams of science operating under different Ministries in the government.

- In addition, the Mission will have benefits for the common man - Providing clean drinking water and explore the avenues of desalination of water as well as extracting minerals from the ocean belt.

- To know more about the Deep Ocean Mission, click here.

International Trade Finance Services Platform

- International Financial Services Centres Authority (IFSCA) has issued a framework for setting up the International Trade Finance Services Platform ('ITFS') for providing TFSs at International Financial Services Centres ('IFSCs').

- ITFS framework will enable Exporters and Importers to avail many types of trade finance facilities at competitive terms, for their international trade transactions through ITFS, a dedicated electronic platform.

- This framework will help in their ability to convert their trade receivables into liquid funds and to obtain short term funding.

- It will provide an opportunity to the participants to avail trade finance facilities for trade transactions on the ITFS platform such as

    1. Export Invoice Trade Financing,

    2. Reverse Trade Financing,

    3. Bill discounting under Letter of Credit,

    4. Supply Chain Finance for Exporters,

    5. Export Credit (Packing Credit),

    6. Insurance/ Credit Guarantee,

    7. Factoring and any other eligible product.

International Financial Services Centres Authority

- The Central Government had set up International Financial Services Centres Authority (IFSCA) vide IFSCA Act, 2019 with headquarters in Gandhinagar (Gujarat).

- IFSCA was set up to develop and regulate all financial products, services and institutions in International Financial Services Centres (IFSCs).

- [These functions have been previously approved by any appropriate regulator such as Reserve Bank of India (RBI), the Securities and Exchange Board of India (SEBI) etc., in an IFSC.]

- It may also recommend to the central government any other financial products, services or institutions, which may be permitted in an IFSC.

- IFSCA's 'FinTech' initiatives include financial products and services across the spectrum of banking, insurance, securities and fund management.

- **Members** - The IFSCA will consist of nine members, appointed by the central government. They will include,

    1. Chairperson of the authority,

    2. A member each from the RBI, SEBI, the Insurance Regulatory and Development Authority of India (IRDAI), and the Pension

> **International Financial Services Centre**
>
> - The first IFSC in India has been set up at the Gujarat International Finance Tec-City (GIFT City) in Gandhinagar.
>
> - IFSCs offer a business and regulatory environment that is comparable to other leading international financial centres in the world like London.
>
> - They are intended to provide Indian corporate with easier access to global financial markets, and to complement and promote further development of financial markets in India.
>
> - It enables bringing back the financial services and transactions that are currently carried out in offshore financial centres by Indian corporate entities and overseas branches/subsidiaries of Financial Institutions to India.

Fund Regulatory and Development Authority (PFRDA);

3. Two members from the Ministry of Finance and

4. Two other members appointed on the recommendation of a Selection Committee.

- All members of the IFSC Authority will have a term of 3 years, subject to reappointment.

- Recently, International Financial Services Centres Authority (IFSCA) has become an associate member of the International Organization of Securities Commissions (IOSCO).

Gross Environment Product

- The Uttarkhand government announced that it will initiate valuation of its natural resources in the form of 'Gross Environment Product' (GEP), said to be along the lines of Gross Domestic Product (GDP).

- Gross Environment Product (GEP) is an assessment system to measure the ecosystem services of any area.

- It reflects the aggregated annual value of goods and services provided by ecosystems (forests, water bodies, oceans, etc.) to people in a given region, such as at district levels, state, and country.

- It entails the establishment of a natural capital accounting framework by integrating ecological benefits into common measures of economic growth such as GDP.

- It summarizes the value of ecosystem services in a single monetary metric.

Ecosystem Services

- The term "ecosystem services" (ES) was coined in 1981 to attract academics to address environmental issues.

- ES are the benefits human populations derive, directly or indirectly, from ecosystem functions.

- In 1997, a group of economists and ecologists led by ecological economist Robert Costanza showed that at global level the value of "Ecosystem Services" is about twice as much as the global GDP.

Bitcoin Hardware Wallet

- Twitter's payments firm Square would soon build a hardware wallet to store bitcoin. The wallet will be a type of plug-in device, much like a USB pendrive that stores, manages and secures a user's crypto assets.

- Each digital asset is linked to a cryptographic password called a 'private key' to allow users to access it. This key safeguards crypto-currencies from theft and unauthorised access.

- The asset owner, with the help of a secure hardware wallet, can access the private key to buy and sell crypto assets from anywhere.

- Most hardware wallets allow users to manage multiple accounts; some even allow users to connect to their Google or Facebook accounts.

- Popular hardware wallets include Trezor, Ledger, KeepKey and Prokey.

- **Different from a software wallet** - Cryptocurrency keys can be stored in two kinds of wallets - software and hardware.

- Software wallets are like apps that digitally store private keys. Most software wallets don't charge users to store private keys, but may collect commission for trading via the app.

- Software wallets can be vulnerable to malware. Hardware wallets and physical devices act like cold storage for confidential keys.

- The passwords are protected by a PIN, making it difficult for hackers to extract private keys as the information is not exposed to the Internet.

- **Upsides** - Hardware wallets are said to be convenient as they can be connected to trading exchanges to complete transactions.

- Hardware wallets are often stored in a protected microcontroller and cannot be transferred out of the device, making them secure.

- Their isolation from the Internet mitigates the risk of the assets being compromised. Moreover, it does not rely on any third-party app.

- **Downsides** - Since the wallet is in physical form, the device could be stolen or destroyed.

- There are prominent hardware backdoors that could be used by malicious actors to steal confidential data.

- Some hardware wallets can be expensive and have complex features as compared to software wallets.

Dogecoin

- The co-founder of Dogecoin has called the cryptocurrency industry a right-wing, hyper-capitalistic technology built to amplify the wealth of the rich by extracting money from the financially desperate and naive.

- **Origin** - The meme-inspired Dogecoin is a Cryptocurrency was created in 2013 by software engineers as a faster but "fun" alternative to Bitcoin.

- It takes its name and logo from a Shiba Inu meme that was viral several years ago.

- **Difference** - Unlike Bitcoins, whose maximum possible number is fixed at 21 million (a figure that is estimated to be reached by 2040), Dogecoin numbers do not have an upper limit.

17.   ENVIRONMENT

Lemru Elephant Reserve

- The Chhattisgarh Government has proposed to decrease the area of the proposed Lemru Elephant Reserve, in Korba district, to 450 sq km.

- The proposal for the Lemru Reserve was passed by the Assembly in 2005 and got central approval in 2007.

- This reserve is a **natural elephant habitat**. The reserve will be a part of an elephant corridor that connects Lemru (Korba), Badalkhol (Jashpur), Tamorpingla (Surguja).

- Lemru is one of two elephant reserves planned to prevent human-animal conflict in the region, with elephants moving into Chhattisgarh from Odisha and Jharkhand.

- [**Badalkhol Tamorpingla** is another elephant reserve that was notified in 2011.]

- The area proposed under the reserve is part of the Hasdeo Aranya forests, a very diverse biozone that is also rich in coal deposits.

- The reserve is in a coal-bearing area with an estimated value of Rs 100,000 crore.

Detergent Footprint

- Water pollution caused by detergents is a big global concern.

- The per capita detergent consumption in India is around 2.7 kg per year. It is around 10 kg in the United States of America.

- **Nonylphenol**, a hazardous chemical present in detergents, is known to enter water bodies and the food chains.

- It bio-accumulates and can pose serious environmental and health risks.

- It has been detected in human breast milk, blood and urine, and is associated with reproductive and developmental effects in rodents.

- Bureau of Indian Statistics (BIS) has set the standard of phenolic compounds in drinking water (0.001 mg/L) and surface water (5.0 mg/L).

- **Carcinogens and Non-biodegradables** - The detergents contain suspected carcinogens, and ingredients that do not fully biodegrade.

- Many laundry detergents contain approximately 35 to 75% phosphate salts. Phosphates can cause a variety of water pollution problems. Non-biodegradables can't be eliminated by wastewater treatment.

- **Eutrophication** - Some phosphate-based detergents can cause eutrophication. Phosphate-enrichment can cause the water body to become choked with algae and other plants.

- Eutrophication deprives the water of available oxygen, causing the death of other organisms.

- **Oxygen-Reducing Substances** - Detergents also contain oxygen-reducing substances that may cause severe damage to the fishes and other marine animals.

- [Oxygen-Reducing Substances are chemical compound that readily transfer oxygen atoms.]

- They are capable of destroying the external mucus layers that protect the fish from bacteria and parasites, causing severe damage to the gills.

  - o Fish die when detergent concentrations are near 15 parts per million (ppm);

  - o Fish eggs die when detergent concentrations as low as 5 ppm.

- **Anthropogenic components** like herbicides, pesticides and heavy metals present in the detergents can cause the water to grow murky.

  - o This block out light and disrupting the growth of plants.

  - o Turbidity clogs the respiratory system of some species of fishes.

- Pathogens from these toxic water bodies cause diseases, some fatal, in human or animal hosts diseases.

- Drinking water contaminated with detergents can be hazardous to human health.

Fly Ash

- NTPC Ltd (formerly known as National Thermal Power Corporation Limited) has invited Expression of Interest for sale of fly ash from the designated ports of the Middle East and other regions.

- Fly ash is a finely divided byproduct obtained from the burning of coal in electric power generating plants and steam generating plants.

- It results from the combustion of pulverized coal. It is called fly ash because it is transported from the combustion chamber by exhaust gases.

- It is collected from the exhaust gases by electrostatic precipitators or filter fabric bag filters.

- Fly ash has substantial amounts of silicon dioxide (SiO_2), aluminium oxide (Al_2O_3), ferric oxide (Fe_2O_3) and calcium oxide (CaO).

- **Uses of fly ash** - Typical highway engineering applications include: Portland Cement Concrete (PCC), soil and road base stabilization, flowable fills, grouts, structural fill and asphalt filler.

- Fly ash is most commonly used as a pozzolan in PCC applications.

- [Pozzolans are siliceous or siliceous and aluminous materials, which in a finely divided form and in the presence of water, react with calcium hydroxide to produce cementitious compounds.]

- It is used as good mineral filler in hot mix asphalt (HMA) applications and improves the fluidity of flowable fill and grout.

Flex Fuel Vehicles

- The Government may issue guidelines for Flex Fuel Vehicles (FFV) soon.

- FFV or "dual-fuel vehicle" is a modified version of vehicles that which comprises of the internal combustion engine which could run both on gasoline and blended petrol with either ethanol or methanol fuel.

- [Ethanol blends - E12 fuel is a blend of 12% ethanol in gasoline, while E 15 fuel is a blend of 15% ethanol in gasoline.]

- Both of the fuels are stored in same common tank. The fuel injection and spark timing are automatically adjusted in accordance with the actual blend detected by the fuel composition sensor.

- **FFV is different from the bi-fuel vehicles** - In the bi-fuel vehicle, two fuels are stored in the separate tanks and engine runs on one fuel at a time.

Re-wilding of Wild Animals

- Periyar Tiger Reserve (PTR) attempted to reintroduce into the wild an abandoned tiger cub after rearing it in 'captivity' for two years.

- **Re-wilding** is systematic, scientifically planned re-introduction of viable populations of lost animals to natural environments.

- It is a form of environmental conservation and ecological restoration that has significant potential to increase biodiversity, create self-sustainable environments and mitigate climate change.

- **SOP** - National Tiger Conservation Authority (NTCA) laid down the Standard Operating Procedures (SOPs)/Guidelines under Section 38(O) of The Wildlife Protection Act, 1972.

- As per these SOPs, there are three ways to deal with orphaned or abandoned tiger cubs.

  1. First way is to make an effort to reunite the abandoned cubs with their mother.

  2. If a reunion of the cub with its mother is not possible, then shift the cub to a suitable zoo.

  3. Reintroduction of the cub into the wild after a certain time when it appears that the cub is capable of surviving in the wild independently. This is what is known as 're-wilding'.

- NTCA stresses that the tiger cub should be reared in an in situ enclosure for a minimum of two years, and during this time, each cub should have a successful record of at least 50 'kills'.

- Tiger cubs should be in prime health, and of dispersing age (three/four years). There should be no abnormality/incapacitation.

- **Challenges** - Failures of re-wilding led to deaths of many tigers due to illness, injuries and territorial fight. as well as serious livestock depredations, and even man-eating problems.

- Besides, the re-wilding process is very costly.

- **Choosing the location** - There is a need to protect more habitats strictly, so that the prey densities rise and more tigers can thrive.

- Reintroduction of captive animals in protected areas, which already have the presence of the same species, results is territorial fights. If these animals are released in a protected area, which requires a particular species, then there are chances of survival.

Tracking of Tigers

- Major ways of tracking a tiger are radio collars and camera traps. GSM camera traps can also be used, though they are dependent on internet connectivity.

- **Radio collars** are put on tigers for long-term studies of their behaviour, their feeding and movement patterns, etc. For this, a tiger is tranquilised and the collar put around its neck.

- Using the highly sophisticated technology of radio telemetry, officials can get real-time information about its movement.

- **Camera traps** can be used to capture a non-collared tiger. These traps are laid at locations which the tiger is most likely to move past.

- But apart from these places, it keeps moving to scores of other areas where there are no cameras. Thus, only a few locations can be received.

- Also, the cameras are checked only after a gap of 2-12 hours.

- While camera traps do help in identifying the animal, but if more than one tiger is moving around in a given location, this can get tricky.

- **Areas** - Tiger tracking is done both in protected areas (PAs) and non-PAs (generally human-dominated landscapes).

- This is further distinguished into tracking in established and non-established territories.

- Generally, tigers have big territories and hence when they move from one end to the other, another male could even trespass into their territory.

- But there are also tigers that don't have established territories. Their movement is difficult to track.

- Tigresses have small territories, which they guard by continuously patrolling it. So they spend more energy and thus require more food.

- Females in PAs require 10-12% more food than males. The food requirement of females over males goes up by about 24% in human dominated landscapes. So, more tigresses than tigers come in conflict with humans.

Study on Air Pollutants

- A new study says that Black Carbon (BC) has adverse effect on human health and leads to premature mortality.

- The Scientists from the Centre of Excellence in Climate Change Research who conducted the study were supported by the Climate Change programme of Department of Science and Technology (DST).

- The study explored the individual and cumulative impact of BC aerosol, fine (PM 2.5), and coarse (PM 10) particulates, and trace gases (SO2, NO2, O3) on premature mortality in Varanasi of Indo-Gangetic plain.

> **Black Carbon**
>
> - Black carbon, commonly known as soot, is a solid particle or aerosol that is produced from incomplete combustion.
>
> - It is a form of particulate air pollutant that contributes to warming of the atmosphere.

- The Scientists utilized daily all-cause mortality and ambient air quality from 2009 to 2016 to clearly establish a significant impact of BC aerosols, NO2 and, PM2.5 exposure on mortality.

- **Findings** - The inclusion of co-pollutants (NO2 & PM 2.5) in the multi-pollutant model increased the individual mortality risks for BC aerosols.

- The effect of pollutants was more prominent for males, age group 5-44 and, in winter. The adverse effect of pollutants wasn't limited to current day of exposure but can extend as high as up to 5 days (Lag effect).

- The mortality rises linearly with an increase in air pollutants level and shows adverse impact at higher levels.

Study on Meth Addiction in Brown Trout

- A new study suggests that the brown trout, a common fish species found all over the world, can get hooked on meth that washes into their freshwater homes, to the point that they actively seek out the stimulant.

- [After being used by humans, meth enters waterways through sewage systems and discharges from wastewater treatment plants.]

- It found that even a minuscule amount of methamphetamine (meth) in waterways could be enough to cause addiction in freshwater fish.

- It's clear that meth changed how these animals behave, and those effects could potentially hinder their ability to find food, and reproduce in the wild.

- The meth-exposed fish showed a stronger preference for drugged water, compared with the fish that had not been exposed to meth.

- This difference waned the more time the exposed fish spent in the drug-free tank.

- Such unnatural attraction to an area with trace amounts of meth could not only disrupt the fishes' migratory patterns but also undermine their success in foraging for food or finding mates or avoiding predators.

Post-2020 Global Biodiversity Framework

- The UN Convention on Biological Diversity (CBD) has demanded an additional $200 billion fund flow to developing countries from various sources to manage nature through 2030.

- It is one of many demands and targets that have been set through 2030 in the official draft of a new Global Biodiversity Framework.

- The post-2020 global biodiversity framework builds on the Strategic Plan for Biodiversity 2011-2020.

- This new framework will be the global guiding force to protect nature and to retain its essential services for humans from 2020 to 2030.

- **Goals** - The new frameworks have four goals to achieve by 2050.

- o To halt the extinction and decline of biodiversity,
    - The rate of extinctions has been reduced at least tenfold and
    - The risk of species extinctions across all taxonomic and functional groups is halved and
    - Genetic diversity of wild and domesticated species is safeguarded, with at least 90% of genetic diversity within all species maintained.
  - o To enhance and retain nature's services to humans by conserving.
  - o To ensure fair and equitable benefits to all from use of genetic resources.
  - o To close the gap between available financial and other means of implementation and those necessary to achieve the 2050 Vision.
- The framework document says that the adequate financial resources to implement the framework are available and deployed, progressively closing the financing gap up to at least $700 billion per year by 2030.
- **Targets** - The new framework has the same 21 lofty targets agreed earlier to meet by 2030.
    - o To bring at least 30% of land and sea under the world's protected areas,
    - o To redirect, repurpose, reform or eliminate incentives harmful for biodiversity, in a just and equitable way, reducing them by at least $500 billion per year.
- This framework ensures the right capacity building of the communities /governments to take up conservation measures to meet the goals.
- These include the contentious technology transfer to countries that don't have it currently and also a wide scientific cooperation among countries.

Shift in September Monsoon Rainfall

- A research showed that monsoon precipitation is sensitive to the choice of irrigation practices in South Asia. It investigated the impact of agricultural water use on the Indian Summer Monsoon using a climate model.
- It found that excess irrigation over northern India shifts the September monsoon rainfall towards the north-western part of the subcontinent increases widespread weather extremes over Central India.
- This is also caused by an increase in irrigation and consequent increase in evapotranspiration [Evapotranspiration is the sum of evaporation from the land surface plus transpiration from plants.]
- Meteorological hazards expose the vulnerable farmers and their crops to risks of failure.
- Increasing crop risk is predominantly driven by the decreasing number of farmers, and the wheat risk is also attributed to increasing minimum temperatures during the crop growing season.
- The findings on irrigation-monsoon feedbacks and the agri-cartographic products will directly benefit the National Initiative on Climate Resilient Agriculture by the GoI.

National Initiative on Climate Resilient Agriculture

- National Initiative on Climate Resilient Agriculture (NICRA) was launched in 2011 by Indian Council on Agricultural Research (ICAR) to enhance the resilience of agriculture to climate change.
- [ICAR is an autonomous body responsible for coordinating agricultural education and research in India that reports to the Department of Agriculture and Research (DARE) in the Ministry of Agriculture.]
- NICRA recognizes India's vulnerability to climate change with nearly half of its population dependent on agriculture. Objectives of NICRA are,
    - o **Research** to improve production and risk management so as to enhance climate resilience of Indian agriculture.
    - o **Technology demonstration** to enable vulnerable districts in coping with climate change through demonstration of site specific technologies on farmer s fields.
    - o **Capacity building** of scientists and other stakeholders in climate resilient research.
- To know more about the National Initiative on Climate Resilient Agriculture, click here.

Insights of Indigenous People on Climate Change

- The Food and Agricultural Organization (FAO) studied the indigenous people living on the frontline of climate change.

- Indigenous people worldwide are self-reliant and resilient, living sustainably and in harmony with their ecosystems.

- They play a vital role in countering global threats like destruction of nature, climate change, biodiversity loss and risk of future pandemics.

- There are some 478 million indigenous peoples in the world, according to FAO, whose research also explored 11 indigenous communities.

    1. Reindeer herding by the Inari Sámi people in Nellim, Finland,

    2. The forest-based food system of the Baka indigenous people in South-eastern Cameroon and

    3. The Milpa food system of the Maya Ch'orti' people or "the maize people" in Chiquimula, Guatemala.

- **Threats** - Indigenous peoples' traditional ways of life are at high risk from climate change and the expansion of various industrial and commercial activities.

- Despite surviving for centuries, Indigenous Peoples' agri-food systems may disappear in the next years due to a number of drivers threatening their future.

- Being adaptive is the main resilient element of these food systems.

- Indigenous peoples adapt their food generation and consumption to the seasonality and natural cycles observed in their surrounding ecosystems, not in the opposite way as most other societies do.

Impact of Climate Change

- People around the world have been doubly hit by the pandemic and extreme weather events which have been fuelled by climate change.

- **2021 is a Year of Extreme Weather Events** - Among the extreme weather events across the world this year are,

    1. Unprecedented heat wave that drove temperatures across Canada and parts of the US to a record high,

    2. Extreme floods in Germany that killed over 180 people;

    3. Cyclones Tauktae and Yaas that hit India's west and east coasts;

    4. New South Wales (Australia) floods were the worst flooding on the mid-north coast since 1929.

- Extreme weather events like more powerful heat waves, extreme rainfall, droughts, etc., are likely to become more frequent or more intense with rising anthropogenic climate change.

- Rising temperatures will have far-reaching consequences, like impact on food security, health, the environment and sustainable development.

Reports

- Carbon dioxide in the atmosphere at 419 parts per million (ppm) in May 2021 was the highest level in 63 years. This was recorder in the NOAA's Mauna Loa Atmospheric Baseline Observatory using Keeling Curve.

- According to the NOAA's Climate Extremes Index, the area in the Southwest are experiencing extremely high temperatures in summer over the last 20 years, with very little relief in the last six years.

- According to the Climate Science Special Report, global temperatures are likely to continue to increase due to the release of greenhouse gases.

- According to a report, temperatures at the Earth's poles are rising at two to three times the temperature at the equator. This weakens the jet stream of the mid-latitudes, situated over Europe.

- During summer and autumn, the weakening of the jet stream has a causal effect resulting in slower-moving storms. This can result in more severe and longer-lasting storms with increased intensity.

- A 2016 study stated that human-induced global warming has contributed to the increased frequency and intensity of cyclonic storms over the Arabian Sea.

- o Indian Ocean is heating up at a faster pace in comparison to the Pacific or the Atlantic.
- o Western parts of the Indian Ocean are warming up even more.
- Many studies have found that a rise in the temperature of the sea surface is related to the changes in the intensity and frequency of cyclones.

Impact of Cyclones on Fishing Sector

- **Disaster management** - The State Governments concerned provide necessary relief to affected people by natural disaster from the State Disaster Response Fund (SDRF) already placed at their disposal.
- Further assistance is provided by the Ministry of Home Affairs (MHA) from the National Disaster Response Fund (NDRF) as per the procedure for management of relief necessitated by notified natural disasters.
- **Assessment** - In the case of cyclones Amphan, Taukate and Yaas, the Central Government constituted the Inter-Ministerial Central Teams (IMCT) that assessed the damages caused due to cyclones.
- IMCT visited the affected areas of Gujarat, Jharkhand, West Bengal and Odisha for on the spot assessment of damages and recommendations of Sub-Committee for National Executive Committee (SC- NEC).
- Based on the IMCT report, the High Level Committee (HLC) had approved some amount to the fisheries sector from NDRF subject to the adjustment of 50% of balance available in their SDRF account.
- IMCT report recommended help especially to the fisheries sector.
- **Fisheries sector** - The Department of Fisheries (DoF) implements the Schemes for overall development of fisheries sector.
- Fishermen are provided assistance for various components and activities like boat replacement, nets etc., under the Pradhan Mantri Matsya Sampada Yojna is implemented by DoF through the State Governments.

Improvement of Quality of Aquatic Life in Chambal

- The aquatic animal population, including dolphins and gharial, in the Chambal River increased significantly in the past year due to a decrease in demand for fish and sand amid the pandemic-induced lockdown.
- [The Chambal River passes through Rajasthan, Uttar Pradesh and Madhya Pradesh.]
- **Threats for the dolphins** - Illegal sand mining and illegal net fishing were the threats for the dolphins. There were the major reasons behind the death of calves.
- The dolphin pools were identified in 2019. The dolphin population was falling every year between 2016 and 2020 but for the first time in six years the population has increased.
- **Reasons** - The Ghat (bank) in-charges were deployed near the pools to check illegal net fishing.
- But with the slowdown of the business of hotels and restaurants during the lockdown and other restrictions imposed due to Covid-19, illegal net fishing has almost stopped.
- Decrease of demand of both sand and fish due to lockdown also helped us in saving calves.
- **Impact** - The improvement of quality of aquatic life in the Chambal River caused an increase in the population of gharial crocodile by 17% and crocodiles by 24%.

Microplastic Pollution in Ganga

- A study has found that the river Ganga is heavily polluted with microplastics as well as other kinds of plastics such as single-use plastic and secondary plastic products.
  - o Ganga has India's largest river basin in terms of catchment area and constitutes about 26% of India's landmass spread across 11 states, which supports 43% of the population.
- For the study, samples of Ganga's water were collected from Haridwar, Kanpur and Varanasi and microplastics were found in all of them.
  - o Of the samples, those taken at Varanasi had the highest concentration of plastic pollution.
- Untreated sewage from densely populated cities across the river's course, along with industrial waste and religious offerings wrapped in non-degradable plastic add a significant amount of pollutants into the river.

- As the river flows, these waste and plastic materials break down further and are carried into the Bay of Bengal and then into the ocean.

- Microplastics flowing all along Ganga suggest a direct linkage between the poor state of both solid and liquid waste management; hence it is critically important to initiate steps to remediate it.

- **Efforts -** Most of the efforts to clean Ganga have focussed on creating sewage treatment capacities in the major urban centres along the river.

- In 2015, the government approved the Namami Gange (100% funding from the central government) programme to clean and protect the river.

- Programmes launched before this include the Ganga Action Plan (1985), the IIT Consortium (2011) for water diversion and effective treatment, and the National Mission for Clean Ganga (2011).

Microplastics

- Among the range of plastic debris that is found in water bodies, microplastics are the most notorious because of their small size.

- On average, microplastics are less than 5 mm in length or roughly equal to 5 pinheads.

- 11% of the 663 marine species that are affected by marine debris are said to be related to microplastic ingestion.

- Microplastics are ingested by marine habitants including fish, corals, planktons etc and are then carried further into the food chain.

- In the case of humans, most of the microplastics can be found in food, water and food containers and their ingestion can cause health problems.

Cloudbursts

- Recently, cloudbursts have been reported from several places in Jammu and Kashmir, UT of Ladakh, Uttarakhand and Himachal Pradesh.

- Cloudbursts are short-duration, intense rainfall events over a small area.

- According to the India Meteorological Department (IMD), it is a weather phenomenon with unexpected precipitation exceeding 100mm/h over a geographical region of approximately 20-30 square km.

- A 2017 study of cloudbursts in the Indian Himalayas noted that most of the events occurred in the months of July and August.

- A 2020 study showed that the meteorological factors behind the cloudburst over the Kedarnath region.

- It showed that during the cloudburst, the relative humidity and cloud cover was at the maximum level with low temperature and slow winds.

- Because of this situation, a high amount of clouds may get condensed at a very rapid rate and result in a cloudburst.

- **Frequency** - Studies have shown that climate change will increase the frequency and intensity of cloudbursts in many cities across the globe.

- World Meteorological Organization said that there is about a 40% chance of the annual average global temperature temporarily reaching 1.5°C above the pre-industrial level in at least one of the next five years.

- There is a 90% chance of at least one year between 2021 and 2025 becoming the warmest on record and dislodge 2016 from the top rank.

- IIT Gandhinagar states that as temperatures increase the atmosphere can hold more and more moisture.

- This moisture comes down as a short very intense rainfall for a short duration probably half an hour or one hour resulting in flash floods in the mountainous areas and urban floods in the cities.

- Also, there is evidence suggesting that globally short duration rainfall extremes are going to become more intense and frequent.

- With warming climate or climate change, we will surely witness these cloudburst events in increased frequency in the future.

India's 14 Tiger Reserves Recognized by Global CA/TS

- The 14 Tiger Reserves in India received the accreditation of the Global Conservation Assured | Tiger Standards (CA|TS).

- **14 tiger reserves** - Manas, Kaziranga, Orang (Assam), Satpura, Kanha, Panna (MP), Pench (Maharashtra), Valmiki (Bihar), Dudhwa (UP), Sunderbans (West Bengal), Parambikulam (Kerala), Bandipur (Karnataka) and Mudumalai and Anamalai (Tamil Nadu).

- CA|TS has been agreed upon as accreditation tool by the global coalition of Tiger Range Countries (TRCs). Officially launched in 2013, it has been developed by tiger and protected area experts.

- It is a set of criteria which allows tiger sites to check if their management will lead to successful tiger conservation. It sets minimum standards for effective management of target species and encourages assessment of these standards in relevant conservation areas.

SPECIES IN NEWS

Pyrostria laljii

- Recently, Pyrostria laljii has been discovered from the Andaman Islands. It is a 15-meter-tall tree that belongs to the genus of the coffee family.

- The new species is also the first record of the genus Pyrostria in India. Plants belonging to genus Pyrostria are usually found in Madagascar.

- The tree is distinguished by a long stem with a whitish coating on the trunk, and oblong-obovate leaves with a cuneate base.

- It was first reported from South Andaman's Wandoor forest.

- The other places in the Andaman and Nicobar Islands where the tree is found are,

  o Tirur forest near the Jarawa Rerserve Forest and

  o Chidia Tapu (Munda Pahar) Forest.

- Pyrostria laljii has been listed as 'Critically Endangered' on the International Union for Conservation of Nature's (IUCN) Red List.

- While the genus Pyrostria is not found in India, there are several genera from the family Rubiaceae that are common in India - Cinchona, coffee, adina, hamelia, ixora, etc. They have high potential for economic value.

> **Rivina andamanensis**
>
> - It is a new species of pokeweed.
>
> - It was found growing under large trees, shaded and rocky areas, along with herbs and shrubby plants.
>
> - It represents the first record of the pokeweed family Petiveriaceae in Andaman and Nicobar Islands.

Black Leopard

- Sightings of the rare Black Leopard (Melanistic Leopard) were reported in the Navegaon Nagzira Tiger Reserve (NNTR), Tadoba Andhari Tiger Reserve and the Pench Tiger Reserve in Maharashtra.

- Black Leopard or Black Panther (Ghost of the Forest) is a melanistic colour variant of spotted any Panthera, particularly of the leopard (P. pardus) in Asia and Africa, and the jaguar (P. onca) in the Americas.

  o Melanism is a common occurrence in leopards. A melanistic leopard or jaguar is mistakenly thought to be a different species.

- **Habitat** - They are mainly in Southwestern China, Burma, Nepal, Southern India, Indonesia, and the southern part of Malaysia.

- In India, they are reported from densely forested areas of South India, mostly from the state of Karnataka.

- **Threats** - Habitat loss, Poaching, Diseases, Human encroachment, Collision with vehicles, etc.,

- **Conservation** - It is listed in IUCN Red List (Vulnerable), CITES (Appendix I), Wildlife Protection Act, 1972 (Schedule I).

King Cobra

- A king cobra (Ophiophagus hannah), was sighted in the recently declared conservation reserve, Tillari, in Sindhudurg district, Maharashtra.

- It is one of the most venomous snakes on the planet. It is the longest of all venomous snakes as it can reach 18 feet in length.

- **Venom** - Their venom is not the most potent among venomous snakes, but the amount of neurotoxin they can deliver in a single bite is enough to kill 20 people, or even an elephant.

- King cobra venom affects the respiratory centers in the brain, causing respiratory arrest and cardiac failure.

- **Habitat** - King cobras live mainly in the rain forests and plains of India, southern China, and Southeast Asia.

- They are comfortable in a variety of habitats, including forests, bamboo thickets, mangrove swamps, high-altitude grasslands, and in rivers.

- They are the only snakes in the world that build nests for their eggs, which they guard ferociously until the hatchlings emerge.

- **Threats** - Heavy deforestation; Habitat destruction. They are harvested for skin, food, and medicinal purposes; international pet trade. They are persecuted by humans who fear their menacing reputation.

- **Conservation** - The International Union for Conservation of Nature has listed the king cobra as vulnerable to extinction. CITES (Appendix II) and Wildlife Protection Act, 1972 (Schedule II).

Vaquita Porpoises

- Mexico's decision to loosen its policy of keeping a fishing free zone around a protected area in the Gulf of California region was a "setback" to keeping alive a near-extinct vaquita porpoise species.

- Vaquita porpoise, the world's rarest and the smallest marine mammal, is on the edge of extinction.

- It is also known as "the panda of the sea" for the distinctive black circles around its eyes. This porpoise was discovered in 1958.

- It is unique among the porpoises as it is the only species of that family found in warm waters, and the size of the dorsal fin is believed to be an adaptation to that, allowing for extra body heat to dissipate.

- **Habitats** - Found only in the northern Gulf of California (Sea of Cortez) in Mexico. Most commonly seen in shallow waters up to 50 metres deep.

- **Threats** - They are caught and drowned in gillnets set up by poachers to catch totoaba, an endangered species of marine fish sought by Chinese buyers on the black market for its prized swim bladders.

- This species die more each year in fishing nets than are being born.

- **IUCN Status** - Critically Endangered

Caterpillar Slug

- A new study has predicted that Purcell's hunter slug or caterpillar slug (Laevicaulis haroldi), native to South Africa, could soon become an invasive species attacking western and Peninsular India.

- It is listed as an **endangered** species and was first described in 1980.

- It entered India around 2010-2012 accidentally, through international trade via Mumbai. It feeds on the leaves and bark of mulberry plants. It was also sighted on neem trees, papaya, and calotropis plants.

- **Scenarios** - Two future climate change scenarios of the Intergovernmental Panel on Climate Change (IPCC) were studied to decode which places may be vulnerable to the slug attack.

  a) RCP 2.6 scenario represents the best-case scenario where we control emissions and limit anthropogenic climate change.

  b) RCP 8.5 scenario represents the worst that could happen. We don't follow any mitigation rules and have a high-risk future in terms of temperature and other climatic conditions.

- Under both the scenarios, AP, Karnataka, southern parts of Telangana, northeast TN, Gujarat, western MH, coastal Odisha, West Bengal, and some states in North East India are highly suitable for the slug.

- **Management** - Early detection and control are the key for managing newly introduced species before they become invasive.

- Awareness needs to be created among the people to detect, manage and control this newly introduced species.

- Non-toxic methods of controlling this pest need to be developed.

- Also, a strict quarantine in the ports should be in place to avoid further introductions.

Invasive Species

- Invasive alien species are any biological species that are introduced outside their natural range.

- They would negatively impact the native biodiversity, ecosystem function, health and human welfare.

- They could reproduce rapidly and out-compete the native species for food, water and space. They are the second-biggest cause for biodiversity loss, next to habitat destruction.

- **Impacts** - An international study reported that invasive species have cost nearly $26.8 billion per year to the global economy since 1970 and are responsible for the extinction of native and endemic species.

Bhalia Wheat

- In a major boost to wheat exports, the first shipment of Geographical Indication (GI) certified Bhalia variety of wheat was exported today to Kenya and Sri Lanka from Gujarat.

- This GI certified wheat has high protein content and is sweet in taste.

- The unique characteristic of the wheat variety is that grown in the **rain-fed condition withoutirrigation**.

- The crop is grown mostly across Bhal region of Gujarat - Ahmadabad, Anand, Kheda, Bhavanagar, Surendranagar, Bharuch districts.

18.   SCIENCE & TECHNOLOGY

SPACE

Gamma-Ray Burst

- The highest energy afterglow from the most notable Gamma Ray Burst (GRB) explosion from a galaxy 4.5 billion light years away did not follow the evolution expected in standard afterglow models.

- [Gamma-ray bursts (GRBs) are short-lived bursts of gamma-ray light, the most energetic form of light.

- Lasting anywhere from a few milliseconds to several minutes, GRBs shine hundreds of times brighter than a typical supernova and about a million trillion times as bright as the Sun.]

- The detection of high energy photons (TeV Photons) from this GRB provides new insights to unravel the underlying physical processes at work which result in such explosions.

- The GRB with ultra-high energy photons called GRB 190114C was detected for the first time in 2019 by the Major Atmospheric Gamma Imaging Cherenkov Telescopes (MAGIC).

- The GRB lasted for a brief period, followed by an initial bright flash in high energies known as the **'prompt emission'**.

- A less luminous but long-lasting counterpart known as the **'afterglow'** was detected after the prompt emission.

- Detailed modelling of the recent afterglow indicates that the parameters describing the fraction of energy in electron population and magnetic field are evolving with time and not constant as generally seen in GRBs.

- The evolution of these parameters, at early times, may play a role in producing the bright TeV emission.

Moon Wobble

- According to a study, the Wobble phenomenon of the Moon is expected to lead to more flooding on Earth in the middle of the next decade.

- **Moon Wobble** is a regular oscillation that humans have known about for centuries.

- It is one of many factors that can either exacerbate rising sea levels or counteract them, alongside other variables like weather and geography.

- There's nothing new or dangerous about the wobble; it was first reported in 1728.

- **Findings of the Study** - Rising temperatures caused by greenhouse gas emissions, along with the push and pull at ocean levels are the causes of higher flood risks.

- The study warned that the moon wobble is expected to heighten high tides in the middle of the 2030s, but it also showed that this prediction does not apply uniformly to every coastline everywhere.

- **Effect of wobble** - Other variables aside, the effect of the wobble could cause high tide levels at a beach to oscillate by 1 or 2 inches over the course of its long cycle. It just kind of raises the baseline.

- The more your baseline is raised, the smaller weather event you need to cause a flooding event.

Hubble Telescope in Safe Mode

- NASA plans to fix a glitch that has stopped the Hubble space telescope from being used for science work for more than a month.

- The Hubble telescope - launched in 1990 - is currently running in "safe mode", leading to all non-essential systems being shut down.

- It was put "safe mode" after a problem appeared with its payload computer, which controls and coordinates the science instruments onboard the observatory.

- There is also an issue with the Power Control Unit (PCU).

  o The PCU contains a power regulator that provides a constant five volts of electricity to the payload computer and its memory.

  o It also contains a "secondary circuit", which tells the payload computer that it should cease operations if the voltage falls below or exceeds allowable levels.

- Both the payload computer and the PCU are part of Hubble's Science Instrument Command and Data Handling (SI C&DH) unit.

- **About** - Named after astronomer Edwin Hubble, the observatory is the first major optical telescope to be placed in space.

- It is larger than a school bus in size, has a 7.9 feet mirror.

- It captures stunning images of deep space playing a major role in helping astronomers understand the universe by observing the most distant stars, galaxies and planets.

Geo-imaging Satellite EOS-03

- This satellite is scheduled for launch in third quarter of 2021. ISRO realized EOS-03 is capable of imaging the whole country 4-5 times daily.

- [Earth Observation Satellites (EOS) is a remote sensing satellite designed for Earth observation (EO) from orbit, including spy satellites and those used for non-military uses.]

- **Purpose** - This satellite would enable near-real time monitoring of natural disasters like floods & cyclones.

- In addition to natural disasters, EOS-03 would also enable monitoring of water bodies, crops, vegetation condition, forest cover changes etc.

Small Satellite Launch Vehicle

- The first developmental flight of Small Satellite Launch Vehicle (SSLV) is scheduled in fourth quarter of 2021 from Satish Dhawan Space Centre, Sriharikota.

- SSLV was developed by the ISRO as a cost-effective, three-stage, all-solid launch vehicle with a payload capability of 500 kg to 500 km planar orbit or 300 kg to Sun Synchronous Polar Orbit.

- It is shorter in length than the PSLV and GSLV. Unlike the PSLV and GSLV, the SSLV can be assembled both vertically and horizontally.

- The major technologies developed as part of realization of SSLV are,

    1. Flexible nozzle control with electro-mechanical actuators for all stages,

    2. Miniaturized avionics and

    3. A velocity trimming module in the upper stage for precise satellite injection.

- SSLV is ideal for on-demand, quick turn-around launch of small satellites.

- To know more about Small Satellite Launch Vehicle, click here.

Beresheet 2

- SpaceIL, the nonprofit Israeli initiative has secured $70 million fund to make a second attempt at a lunar landing through Beresheet Project.

- **Beresheet 1** or "Genesis spacecraft" built by SpaceIL suffered technical malfunctions and crashed on the moon in 2019.

- **Beresheet 2** was announced in 2020, aiming at landing an unmanned craft on the moon in 2024.

- It plans to set new global space records through a double landing on the moon and the instalment of the lightest ever moon landers, each weighing 60 kg without fuel.

- The objective of this mission is to conduct experiments and collect data on behalf of school students.

- It will be composed of three spacecraft - an orbiter named Mothership' and two landers - that would circle the moon for years.

- **Significance** - The mission hopes to follow China in becoming only the second to successfully land on the far side of the moon.

- Israel would become the fourth nation to land a spacecraft on the moon, only after the former Soviet Union, the US and China.

DEFENCE

Short Span Bridging System

- The first production lot of 12 Short Span Bridging System (SSBS)-10 m, designed and developed by Defence Research and Development Organisation (DRDO), has been inducted into Indian Army.

- The SSBS-10 m plays a crucial role of bridging the gaps up to 9.5 m as a single span providing a 4 m wide, fully decked roadway, ensuring faster movement of the troops and enhance the mobilization of resources.

- Research & Development Establishment, Pune, a premier engineering laboratory of DRDO, has designed and developed the system.

- This system is compatible with multi span Sarvatra Bridging System (75 m), where the last span requires covering gaps less than 9.5 m.

Man Portable Anti-tank Guided Missile

- Defence Research and Development Organisation (DRDO) successfully flight-tested indigenously developed Man Portable Antitank Guided Missile (MPATGM).

- MPATGM is a third generation, low weight, fire and forget Missile.

- The missile is incorporated with state-of-the-art Miniaturized Infrared Imaging Seeker along with advanced avionics.

South Korea's Iron Dome

- South Korea's defence procurement agency had approved plans to develop an artillery interception system, similar to Israel's Iron Dome.

- This new defence system will be designed and built specifically to thwart attacks by rockets and long-range missiles launched by North Korea.

- It will be deployed by 2035 along the Military Demarcation Line that divides the Korean Peninsula.

- **Difference between the Iron Domes** - South Korea's Iron Dome would cost a lot more that the Israel's.

- There are operational differences between the two systems as well, with the most significant being that South Korea's system will be designed to intercept long-range artillery pieces.

- South Korea and Israel face different security threats that require different responses.

    1. Israel contends with Hamas, which is primarily a militant group, and irregular forces sporadically,

    2. South Korea had to contend with North Korea, a nation with its own extensive military capabilities.

Nauka

- Russia's space agency Roscosmos will be attaching a module called Nauka ("science" in Russian) to the International Space Station (ISS).

- Nauka is a significantly larger module that will replace a Russian module called Pirs ("pier" in Russian), which was detached from Zvezda module of the ISS using a Progress MS-16/77P cargo ship.

- [Pirs module was used as a docking port for spacecraft and as a door for cosmonauts to go out on spacewalks.]

- Nauka was launched from the Baikonur Cosmodrome in Kazakhstan using a Proton rocket, Russia's most powerful space inventory.

- It is the biggest space laboratory Russia has launched to date, and will serve as a Russia's main research facility on the ISS.

- On the ISS, Nauka will be attached to the critical Zvezda module, which provides all of the ISS's life support systems.

- [Zvezda module serves as the structural and functional centre of the Russian Orbital Segment (ROS), the Russian part of the ISS.]

James Webb Space Telescope

- NASA is set to launch the large infrared James Webb Space Telescope (JWST) touted as the "premier observatory" of the coming decade.

- Considered the successor of the Hubble Space Telescope, JWST will study various phases in the history of the universe, from the formation of solar systems to the evolution of our own Solar System.

- It will also explore the most ancient and distant galaxies using infrared light. It will also have the power to analyse the atmospheres of many the new planets, for the potential for life.

- After launch, it will head near the Earth-Sun 'L2' Lagrange point almost a million miles away (1.5 million kilometers).

- It is funded by NASA in conjunction with the European Space Agency (ESA) and the Canadian Space Agency (CSA).

HEALTH

Lambda Covid Variant

- The Lambda variant of the SARS-CoV-2 coronavirus has been designated by the World Health Organization as the seventh and newest "**Variant of Interest**", meaning it was something to watch out for.

- This variant, previously known by its formal scientific name C.37, has now been detected in more than 25 countries. It has been the dominant variant in Peru and other countries of South America.

- It has not yet been found in the Indian population, but has recently been detected in the UK and other European countries.

- **Designation** - The designation of Lambda Variant as a "variant of interest" means that the genetic changes involved are predicted or known to affect transmissibility, disease severity, or immune escape.

- It is an acknowledgement of the fact that the variant has caused significant community transmission in multiple countries and population groups.

- **Other Designations** - There are currently seven variants that the WHO classifies as "Variants of Interest".

- Another four - Alpha, Beta, Gamma and Delta - have been designated as "Variants of Concern", and are considered a bigger threat. These variants were all named after letters of the Greek alphabet.

Immunity Debt

- As countries start lifting curbs imposed on societies due to the pandemic, there are higher rates of respiratory infections, even unseasonal diseases such as influenza and the respiratory syncytial virus (RSV).

- This is known as the "immunity debt" and it was brought on by non-pharmaceutical interventions (NPIs) put in place during the pandemic like social distancing, use of masks, and hand hygiene.

- The NPIs have been employed to reduce the spread of the SARS-CoV-2 virus, and have succeeded at varying levels in countries.

- However, they have had unintended consequences for other directly transmitted, endemic respiratory diseases as well.

- The constant exposure to infectious agents boosts the immune response in the human body.

- In the absence of this, there is a possibility that there could be unseasonal outbreaks with greater severity than usual.

- Disruptions to the seasonal transmission patterns of these diseases may have consequences for the timing and severity of future outbreaks.

Warm Covid Vaccine

- Mynvax, a vaccine technology startup, incubated by the Society for Innovation and Development (SID) at the Indian Institute of Science, will bring a thermo-tolerant Covid vaccine to the market.

- This Vaccine formulation remained stable at 37 degrees Celsius up to a month, and at 100 degrees Celsius for up to 90 minutes.

- This stability of the vaccine makes it a "warm" Covid Vaccine. This unique heat tolerant attribute of the vaccine helps to increase access to the vaccine across the country.

Soberana

- Cuba's State-run corporation BioFarma's Soberana 2 and Abdala vaccines have shown greater-than-90% efficacy.

- Both the vaccines are three-shot vaccines. Both are subunit vaccines, meaning that a part of the virus forms the antigen and is hitched on to another construct.
    - In Abdala, the spike protein of the coronavirus is combined with a chemically manufactured adjuvant,
    - In Soberana 2, the spike protein is chemically linked to the tetanus toxoid, making it a conjugate vaccine.

- The Soberana vaccine is by far the only one among coronavirus vaccine candidates that relies on the conjugate vaccine technology.

Conjugate Vaccines

- A conjugate vaccine is a type of vaccine which combines a weak antigen with a strong antigen as a carrier so that the immune system has a stronger response to the weak antigen.

- The most common conjugate vaccines are those used for Haemophilus influenza type b and the pneumococcal bacteria.

- Cuban vaccine candidates are based only on the part of the virus that is involved in contact with the cell's receptor, the Receptor-Binding Domain (RBD).

- The RBD is the one that induces the greatest number of neutralising antibodies.

- **Cheimi-Hib** - It is another vaccine already developed by Cuba with this principle. It is the world's second Conjugate Vaccine, against haemophilus influenzae type b.

- [Haemophilus influenzae type b is a coccobacilli responsible for diseases such as meningitis, pneumonia and epiglottitis.]

UV-C Air Duct Disinfection System

- The Ultraviolet-C (UV-C) air duct disinfection system developed by CSIR-CSIO (Central Scientific Instruments Organisation) will be installed in Parliament for the mitigation of airborne transmission of SARS-COV-2.

- This system is designed to fit into any existing air-ducts and the virucidal dosages using UV-C intensity and residence time can be optimised according to the existing space.

- **Uses** - This system deactivates the virus in any aerosol particles by the calibrated levels of UV-C light (wavelength 254 nm).

- It can be used to disinfect the air in auditoriums, malls, educational Institutions, AC buses, hospitals, laboratories, and in railways.

- But these conventional germicidal treatments are done in unoccupied rooms as they can cause health problems.

- Because viruses and bacteria are much smaller than human cells, far-UVC light can reach their DNA and kill them.

- **Finding** - When exposed to 222 nm UV-C irradiation at 0.1 mW/cm2 for 30-seconds, 99.7% of SARS-CoV-2 viral culture was killed.

Ultraviolet Radiation

- UV is a type of light or radiation naturally emitted by the Sun. It covers a wavelength range of 100-400 nm. It is divided into three bands - UV-A (315-400 nm), UV-B (280-315 nm) and UV-C (100-280 nm).

- UV-A and UV-B rays from the Sun are transmitted through our atmosphere and all UV-C is filtered by the ozone layer.

- UV-A rays can penetrate the middle layer of your skin or the dermis and can cause aging of skin cells and indirect damage to cells' DNA.

- UV-B rays can only reach the outer layer of our skin or epidermis and can cause sunburns and are also associated with skin cancer.

- UV-C radiation from man-made sources has been known to cause skin burns and eye injuries.

dbGENVOC

- It is the world's first of its kind database of genomic variations in oral cancer created by National Institute of Biomedical Genomics (NIBMG).

- dbGENVOC has a built-in powerful search engine. So, it is a browsable free resource.

- It contains somatic and germline variants derived from whole exome sequences of oral cancer patients and also whole genome sequences of patients from India, the USA and analyzed by TCGA-HNSCC project.

- It allows a reasonable extent of statistical and bioinformatic analysis to be carried out online.

Oral Cancer

- Oral cancer is the most prevalent form of cancer among men in India, largely fuelled by tobacco-chewing.

- Tobacco-chewing causes changes in the genetic material of cells in the oral cavity.

- These changes (mutations) precipitate oral cancer.

- Researches to identify those genetic mutations that drive oral cancer are ongoing.

- Such driver mutations may be variable across populations.

- The repository will be updated annually with variation data from new oral cancer patients from different regions of India and Southeast Asia.

National Institute of Biomedical Genomics

- The DBT-National Institute of Biomedical Genomics (NIBMG), Kalyani (West Bengal) has been established as an autonomous institution by the Government of India.

- It is funded by the Department of Biotechnology (DBT), Ministry of Science and Technology.

- It is the first institution in India explicitly devoted to research, training, translation & service and capacity-building in Biomedical Genomics.

- **Research focus of the institute** - To understand the molecular basis of disease using genomics and integrative biology, as well as functionalization of genomic leads.

- Such knowledge is translated for enhanced prediction, prevention and cure and also provides us with the insight into mechanism of disease development and progression.

Filoviruses

- In 2019, the Union Health Ministry began an inquiry into an Indian study that looked at filoviruses.

- It said that this study conducted by the National Centre for Biological Sciences (NCBS) and Tata Institute of Fundamental Research (TIFR) didn't get the appropriate permissions from the ICMR.

- **Filovirus** is any virus belonging to the family Filoviridae. They have enveloped virions appearing as variably elongated filaments.

- Virions are pleomorphic (varying in shape) and contain a helical nucleocapsid, which has a protein shell and contains the viral nucleic acids.

- The filovirus genome is made up of a single strand of negative-sense Ribonucleic Acid (RNA), and an endogenous RNA polymerase.

- Filoviridae consists of two genera, Marburgvirus and Ebolavirus.

  1. The first strain of Marburgvirus was discovered in 1967, when it was transported with imported monkeys to Marburg, Germany, and caused a fatal outbreak.

  2. The first strain of Ebolavirus was discovered in 1976, taking its name from the Ebola River in the northern Congo basin of Central Africa, where it first appeared.

- Filoviruses are confined primarily to regions of central, eastern, and western Africa.

- They are among the most dangerous human pathogens known, causing highly fatal hemorrhagic fevers; some strains of Ebolavirus cause death in 50 to 90% of victims. The filoviruses may cause disease in primates.

- Marburg and Ebola strains have been found in different species of fruit bats.

Zika Virus Disease

- In Telangana, precautionary measures being taken to prevent vector-borne diseases such as dengue and malaria would also help avoid Zika cases too (i.e.) Telangana Seasonal Disease Prevention Plan.

- Zika Virus Disease is a caused by a mosquito-borne flavivirus transmitted primarily by Aedes mosquitoes, which bite during the day, in tropical and subtropical regions.

- [Aedes mosquito also transmits dengue, chikungunya and yellow fever.]

- **Symptoms** - Symptoms of Zika infection are generally mild and include fever, rash, conjunctivitis, headache and muscle and joint pain. They typically last for 2 to 7 days. Most people do not develop symptoms.

Zika
MOSQUITO-BORNE VIRAL INFECTION
- Zika is spread mostly by the bite of an infected **Aedes species** mosquito (Ae. aegypti and Ae. albopictus)
- These mosquitoes bite during **day and night**

How people get infected
- A **pregnant woman** can pass Zika to her foetus during pregnancy or around the time of birth
- A person with **Zika** can pass it to his or her sex partners

Health problems
- Many people will have no symptoms or mild symptoms that last a week
- Zika infection during pregnancy can cause serious birth defects

Symptoms
Fever, rash, headache, joint pain, red eyes, muscle pain

- Except for rare neurological manifestations like Guillian Barre syndrome, neuropathy and myelitis in some adults and children, the disease has little significance for the general population.

- But in pregnant women, especially those in the early trimester, the infection can seriously harm the developing foetus.

- It can also lead to the infant developing microcephaly and other congenital malformations, known as congenital Zika syndrome.

- **Transmission** - Zika virus is transmitted,

  1. By the bite of an infected Aedes mosquito,

  2. From mother to fetus during pregnancy,

  3. Through sexual contact, transfusion of blood and blood products, and organ transplantation.

- **Diagnosis** - A diagnosis of Zika virus infection can only be confirmed by laboratory tests of blood or other body fluids, such as urine or semen.

- **Treatment** - There is no treatment available for Zika virus infection or its associated diseases.

- **Prevention** - As the Aedes mosquitoes breed in stagnant fresh water, these breeding grounds should be prevented from being created.

- The Gambusia fish may be released in stagnant water bodies.

Monkey B Virus

- China has reported its first human infection with Monkey B Virus (BV) and subsequent death.

- Initially isolated in 1932, Monkey BV is an alphaherpesvirus enzootic in macaques. B virus is the only identified old-world-monkey herpesvirus that displays severe pathogenicity in humans.

- **Transmission** - Macaque monkeys commonly have this virus, and it can be found in their saliva, feces, urine, or brain or spinal cord tissue.

- The virus may also be found in cells coming from an infected monkey in a lab. B virus can survive for hours on surfaces, particularly when moist.

- **In Humans** - BV is transmitted via direct contact and exchange of bodily fluid secretions of monkeys. The infection has a fatality rate of 70% to 80%.

- BV has a propensity to invade the Central Nervous System when transmitted to humans.

- **Symptoms** - The initial symptoms usually develop around 1-3 weeks after exposure to the virus.

- The first indications of B virus infection are typically flu-like symptoms, following which an infection person may develop small blisters in the wound or area on the body that came in contact with the monkey.

- Some other symptoms of the infection include shortness of breath, nausea and vomiting, abdominal pain and hiccups.

- As the disease progresses, the virus causes inflammation of the brain and spinal cord, leading to neurologic and inflammatory symptoms; issues with muscle coordination; and in extreme cases, death.

- Currently, there are no vaccines that can protect against BV infection.

- **Risk** - The virus might pose threat to laboratory workers, veterinarians, and others who may be exposed to monkeys or their specimens.

OTHERS

'Right to Repair' Movement

- In recent years, countries around the world have been attempting to pass effective 'right to repair' laws. But the movement is facing tremendous resistance from tech giants such as Apple and Microsoft over the years.

- The movement traces its roots back to the very dawn of the computer era in the 1950s.

- The goal of the movement is to get companies to make spare parts, tools and information on how to repair devices available to customers and repair shops,
    1. To increase the lifespan of products and
    2. To keep them from ending up in landfills i.e., electrical waste (e-waste) generation.
- It will contribute to circular economy objectives by improving the life span, maintenance, re-use, upgrade, recyclability and waste handling of appliances.
- **US** - The US President called on the Federal Trade Commission to force tech companies to allow consumers to fix their own electronic devices - either themselves or using a technician of their choice.
- As of 2021, almost all of the 50 US states have proposed a right to repair bill.
- **UK** - The UK government introduced right-to-repair rules with the aim of extending the lifespan of products by up to 10 years.

Cryptogamic Garden

- India's first cryptogamic garden housing nearly 50 species of lichens, ferns and fungi was inaugurated at Deoban of Uttarakhand's Dehradun district.
- This garden at Deoban is at a height of 9,000 ft. Deoban was chosen to locate the garden because of its low pollution levels and moist conditions which are conducive for the growth of cryptogamic species.
- Deoban has pristine majestic forests of Deodar and Oak which create a natural habitat for these cryptogamic species.

Cryptogamae

- Cryptogamae means "hidden reproduction" referring to the fact that they produce no flowers, fruits and seeds. It includes all non-seed bearing plants.
- They are classified as lower plants because they don't have many of the structures we associate with plants.
- These can both be aquatic or terrestrial. These reproduce vegetatively, asexually and sexually.
    o Vegetative reproduction takes place cell division or fragmentation.
    o Asexual reproduction takes place by the means of spores.
    o Sexual reproduction takes place by fusion of male and female gametes.
- Algae, bryophytes (moss, liverworts), lichens, ferns and fungi are the groups of cryptogams that require moist conditions to survive.
- **Lichens** are a complex life form that is a symbiotic partnership of two separate organisms, a fungus and an algae.
- **Fungi** are a kingdom of eukaryotic organisms that are heterotrophs.
- **Ferns** are the largest living group of vascular plants.
- The Plant Kingdom has two groups -Cryptogams (Non-seed bearing plants) and Phanerogams (Seed bearing plants).

Classification of Cryptogams

- Cryptogams are further divided into 3 groups such as Thallophyta, Bryophyta and Pteridophytes.
- **Thallophyta** include algae, fungi, bacteria, and lichens. These are the simplest plants where the body is not differentiated into roots, leaves, and stems. The simplest thallophytes are bacteria.
- These are aquatic plants that can grow in fresh as well as marine water. These lack vascular system.
- **Bryophyta** includes liverworts, horned liverworts, and mosses. are the simplest and primitive non-vascular land plants that occupy an intermediate position between algae and pteridophytes.
- These are also an undifferentiated plant with no vascular tissues. They prefer moist habitats but they can survive in dry environments too.
- These have rhizoids (root like structure) for anchorage. These are generally found in damp and moist places.

- These can grow both on land and in water. These are simplest of all land plants and also known as <u>amphibians of the plant kingdom</u>.

- **Pteridophytes or vascular cryptogams** include all kinds of ferns.

- These have well-differentiated plant body and vascular system is also present in them. These are most advanced of all cryptogams.

- They are vascular plants that disperse spores. It is the first plant to have xylem and phloem.

P versus NP Problem

- Some scientists have neared solving a problem in Computer Science related to the P versus NP question.

- Polynomial versus Nondeterministic Polynomial (P vs. NP) problem is a cornerstone problem of computational complexity.

- It classifies computing problems into classes according to the time and resources that will be used up in tackling them. It is the question of whether all so-called NP problems are actually P problems.

- **P Problems** - A problem is called P, if the problem can be solved in "polynomial time".

- It means that an algorithm exists for its solution such that the number of steps in the algorithm is bounded by a polynomial function of n. n corresponds to the length of the input for the problem.

- **NP Problems** - A problem is called NP if its solution can be guessed and verified in polynomial time, and nondeterministic means that no particular rule is followed to make the guess.

High Strength Metastable Beta Titanium Alloy

- This Alloy was developed by the Defence Metallurgical Research Laboratory (DMRL), a premier Hyderabad based laboratory of DRDO.

- It contains Vanadium, Iron and Aluminium (Ti-10V-2Fe-3Al) on industrial scale for applications in aerospace structural forgings.

- It is already being used by many developed nations as beneficial substitute for the relatively heavier traditional Ni-Cr-Mo structural steels to achieve weight savings.

- It is unique due to their higher strength, ductility, fatigue, and fracture toughness - making them attractive for aircraft structural applications.

- Their relatively lower lifetime cost, owing to superior corrosion resistance in comparison to steels, is an effective trade-off to justify the use of this expensive material in India too.

- Aeronautical Development Agency (ADA) has identified over 15 steel components which may be replaced by high strength-to-weight ratio Ti-10V-2Fe-3Al alloy forgings in the near future.

- The excellent forgeability of the alloy facilitates manufacture of intricately configured components for **aerospace applications** with potential for **40% weight savings**.

19. INDEX AND REPORT

Global Survey on Digital and Sustainable Trade Facilitation

- The United Nation's Economic and Social Commission for Asia Pacific's (UNESCAP) has released the Global Survey on Digital and Sustainable Trade Facilitation 2021.

- The Global Survey evaluates economies **every two years on 5 key indicators** - Transparency, Formalities, Institutional Arrangement and Cooperation, Paperless Trade, and Cross-Border Paperless Trade.

- The 2021 Survey includes an assessment of 58 trade facilitation measures covered by the WTO's Trade Facilitation Agreement.

- It evidences whether or not the trade facilitation measures being taken have the desired impact and helps draw comparison amongst countries.

- A higher score for a country also helps businesses in their investment decisions.

- **India's performance** - India has scored 90.32% in the 2021 Survey.

- India is the best performing country when compared to South and South West Asia region (63.12%) and Asia Pacific region (65.85%).

- The overall score of India has also been found to be greater than many OECD countries including France, UK, Canada, Norway, Finland etc. and the overall score is greater than the average score of EU.

Global Cybersecurity Index

- India has ranked as the 10th best country in the Global Cybersecurity Index (GCI) 2020 released by the International Telecommunication Union (ITU).

- The US topped the chart, followed by the UK and Saudi Arabia tied on the second position in the index.

- **Calculation** - GCI assessment is done on the basis of performance on five parameters of cybersecurity.

- The parameters include legal measures, technical measures, organisational measures, capacity development, and cooperation.

- The performance is then aggregated into an overall score.

- For each of the five aspects, all the countries' performance and commitment were assessed through a question-based online survey.

- Through in-depth consultations with a group of experts, the questions were then weighted and assessed, to arrive at the overall scores.

- **India's performance** - The GCI results for India show substantial overall improvement and strengthening under all parameters of the cybersecurity domain.

> **International Telecommunication Union**
>
> - It is the United Nations specialized agency for information and communication technologies (ICTs).
>
> - It was found in 1865 as the International Telegraph Union, making it among the oldest international organizations still in operation
>
> - Headquartered in Geneva, Switzerland, it aims to facilitate international connectivity in communications networks.
>
> - It allocates global radio spectrum and satellite orbits, develops the technical standards that ensure networks and technologies interconnect, and strives to improve access to ICTs to underserved communities.
>
> - India has remained a regular member since 1952.
>
> - India got elected as a member of ITU Council for another 4-year term (2019-2022).

- India scored a total of 97.5 points from a possible maximum of 100 points, to make it to the tenth position worldwide in the GCI 2020.

- India has also secured the fourth position in the Asia Pacific region, underlining its commitment to cybersecurity.

Periodic Labour Force Survey

- The third Annual Report on the basis of Periodic Labour Force Survey (PLFS) conducted during July 2019-June 2020 was released.

- PLFS is India's first computer-based survey launched by the National Statistical Office (NSO) in 2017. It has been constituted based on the recommendation of Amitabh Kundu.

- The first Annual Report (July 2017- June 2018) was released in 2019.

- The objective of PLFS is primarily,

  1. To estimate the key employment and unemployment indicators for the urban areas only in the 'Current Weekly Status' (CWS) quarterly - **Quarterly survey**

> **National Statistical Office**
>
> - It is the central statistical agency of the Government mandated under the Statistical Services Act, 1980 under the Ministry of Statistics and Programme Implementation.
>
> - It is responsible for the development of arrangements for providing statistical information services to meet the needs of the Government and other users for information on which to base policy, planning, monitoring and management decisions.
>
> - Services - Collecting, Compiling and Disseminating official statistical information.

2. To estimate the employment and unemployment indicators in both 'Usual Status' (ps+ss) and CWS in both rural and urban areas annually - **Annual survey**

- **Key Indicators** - Labour Force Participation Rate (LFPR) is the percentage of persons in labour force (i.e. working or seeking or available for work) in the population.

- Worker Population Ratio (WPR) is the percentage of employed persons in the population.

- Unemployment Rate (UR) is the percentage of persons unemployed among the persons in the labour force.

- **Activity Status** - The activity status of a person is determined on the basis of the activities pursued by the person during the specified reference period.

- When the activity status is determined on the basis of the reference period of last 365 days preceding the date of survey, it is known as the usual activity status of the person.

- When the activity status is determined on the basis of a reference period of last 7 days preceding the date of survey, it is known as the Current Weekly Status (CWS) of the person.

- The activity status on which a person spent relatively long time during 365 days preceding the date of survey, was considered the usual principal activity status of the person.

- Subsidiary economic activity status is the activity status in which a person in addition to his/her usual principal status, performs some economic activity for 30 days or more for the reference period of 365 days preceding the date of survey.

Status of Leopards, Co-predators and Megaherbivores-2018

- This report was released by the Environment Minister. It is a testimony to the fact that conservation of tigers leads to the conservation of entire ecosystem.

- During all India tiger estimation 2018, leopard population was also estimated within the forested habitats in tiger occupied states of the country.

- The overall leopard population in tiger range landscape of India in 2018 was estimated at 12,852 (SE range 12,172 - 13,535).

- This is a significant increase from the 2014, figure that was 7,910 (SE 6,566-9,181) in forested habitats of 18 tiger bearing states of the country.

PRELIMS PRACTICE QUESTIONS

1) Consider the following statements with respective to *Hispid Hare*

1. **Its population is restricted only in protected areas (PAs), in southern Nepal and north and north-eastern India.**

2. **It is protected under CITES: Appendix II and listed as Vulnerable under IUCN Red List.**

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

2) *Bhotia and Anwal are* Indigenous people of which of the following states?

a. Himachal Pradesh

b. Arunachal Pradesh

c. Uttarakhand

d. Sikkim

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3) Why are children more susceptible to air pollution?

a. Children breathe slower than adults and so absorb more pollutants

b. Children breathe more rapidly than adults and so absorb more pollutants

c. Children have smaller lungs and so absorb pollutants of smaller size

d. Adults are more susceptible to air pollution than Children

4) With respect to *Report on United District Information System for Education Plus (UDISE+) 2019-20*, which of the following statement is *incorrect*?

a. This system of online data collection from the schools was developed by the Department of School Education & Literacy (DoSEL)

b. Gross Enrolment Ratio (GER) at all levels of school education has improved in 2019-20 compared to 2018-19

c. Pupil Teacher Ratio (PTR) has improved at all levels of school education

d. The Gender Parity Index (GPI) at Higher Secondary level has decreased between 2012-13 and 2019-20

5) Consider the following statements with respective to *Hawksbill Turtle*

1. It is the first reptile recorded with the bio flouroscent characteristics.
2. It is listed as vulnerable under the IUCN Red List.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

6) *Global Cybersecurity Index (GCI)* is released by which of the following organizations?

a. Universal Postal Union (UPU)

b. International Telecommunication Union (ITU)

c. World Intellectual Property Organization (WIPO)

d. Institute of Electrical and Electronics Engineers (IEEE)

7) Consider the following statements with respective to *Kalbeliya Dance*

1. It is generally performed for any joyous celebration.
2. It is only performed by women while the men play the musical instruments.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

8) Consider the following statements with respect to *Laboratory for the Conservation of Endangered Species (LaCONES)*

1. It is a part of Centre for Cellular and Molecular Biology (CCMB) under the Council of Scientific and Industrial Research (CSIR).

2. **India's 1st National Wildlife Genetic Resource Bank (NWGRB) is being functioning at LaCONES, Hyderabad.**

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

9) Consider the following statements with respect to *Asian elephants*

1. **Adult male Asian elephants are less social than females.**
2. **Old males were found mostly in the company of their age peers and less frequently with young males.**

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

10) Which of the following statement(s) is/ are *incorrect* with respect to *LEAF Coalition*

1. **It offers the financial assurance needed for countries to start prioritizing policies that reduce deforestation.**
2. **It is an initiative with all the G20 Nations as its members.**

Select the correct answer using the codes given below:

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

11) Consider the following statements with respect to *Bamboo Oasis on Lands in Drought (BOLD)*

1. **The project serves the combined national objectives of reducing desertification and providing livelihood and multi-disciplinary rural industry support.**
2. **It is a unique scientific exercise initiated by the Ministry of Tribal Affairs.**

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

12) Consider the following statements with respect to *NIPUN Bharat*

1. **It creates an enabling environment to accomplish that every child achieves the desired learning competencies in reading, writing and numeracy by the end of Grade 3, by 2026-27.**
2. **It will be implemented by the Department of School Education and Literacy under the aegis of the centrally sponsored Samagra Shiksha Scheme.**

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

13) Which of the following are the main factors governing inter-annual variations of South West Monsoon?

1. **Indian Ocean Dipole (IOD)**
2. **North Atlantic Oscillation (NAO)**
3. **Pacific Decadal Oscillations (PDO)**
4. **El Nino Southern oscillation (ENSO)**

Select the correct answer using the codes given below:

a. 4 only

b. 1 and 4 only

c. 1, 2 and 3 only

d. 1, 2, 3 and 4

14) Which of the following countries are *not* parts of *Organization of the Petroleum Exporting Countries Plus* (OPEC+)?

1. **India**
2. **Russia**
3. **Malaysia**
4. **Australia**
5. **South Sudan**

Select the correct answer using the codes given below:

a. All except 1

b. 1 and 4 only

c. 1, 3 and 4 only

d. 2, 3 and 5 only

15) In India, the Ministries/Departments of the Government are created by the President on the advice of the Prime Minister under which of the following?

a. Article 75 of Indian Constitution

b. The Representation of Peoples Act, 1951

c. Government of India (Allocation of Business) Rules, 1961

d. Rules of Procedure and Conduct of Business in the Lok Sabha

16) With respect to Cobra Lily, consider the following statements:

1. **It is an extinct plant species, once found in Shola grasslands of Western Ghats.**
2. **Podwarshk is an embroidery motif done by Khasi tribes of Meghalya, which resembles the cobra lily.**

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

17) Consider the following statements with respective to *Sir Chettur Sankaran Nair*

1. In 1915, he became part of the Viceroy's Council, put in charge of the education portfolio.
2. In 1919, post the massacre of Jallianwala Bagh, he resigned from the Viceroy's Council in protest.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

18) Consider the following statements with respect to *Umling La*

1. It is the world's highest motorable road, located in Ladakh at an altitude of 19,300ft.
2. It was constructed by the Border Roads Organisation (BRO) as part of Project Himank.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

19) *Assertion (A):* Monsoon precipitation is sensitive to the choice of irrigation practices in South Asia.

Reason (R): Excess irrigation over Northern India shifts the September monsoon rainfall towards the North-Western part of the subcontinent.

Select the correct answer using the codes given below:

a. Both A and R are true and R is the correct explanation of A

b. Both A and R are true but R is not the correct explanation of A

c. A is true but R is false

d. A is false but R is true

20) *Bonalu* is a popular religious festival celebrated in which of the following states?

a. Mizoram

b. Telangana

c. West Bengal

d. Himachal Pradesh

21) Consider the following statements with respective to *Indrajaal Weapon*

1. It is a multiple rocket launcher produced in India with a maximum range of 40 km.
2. It is indigenously developed by Grene Robotics, a Hyderabad based company.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

22) Consider the following statements with respect to *India Industrial Land Bank (IILB)*

1. It is a GIS-based one-stop repository of all industrial infrastructure related information.
2. It is an initiative of Ministry of Commerce & Industry.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

23) Consider the following statements with respect to *SuperLuminous Supernova (SLSNe)*

1. It is a type of stellar explosion generally originated from very massive stars with minimum mass limit 25 times more than that of the sun.
2. It occurs very rare because the number distribution of such massive stars in our galaxy or in nearby galaxies is sparse.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

24) With respect to *Hardware Wallet*, consider the following statements:

1. They are physical devices that stores, manages and secures a user's crypto assets.
2. The passwords are protected by a PIN, making it difficult for hackers to extract private keys as the information is not exposed to the Internet.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

25) Consider the following statements with respect to *Ramappa Temple*

1. It was built under the patronage of the Nizam ruler Nizam-ul-Mulk.
2. The temple's chamber is crowned with a shikharam and is surrounded by pradakshinapatha.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

26) Consider the following statements with respect to *Immunity Debt*

1. It is a situation where people failed to develop immunity against viruses that comes from normal contact.
2. It arises mainly due to Non-Pharmaceutical Interventions (NPIs) put in place to reduce the spread of the SARS-CoV-2 virus.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

27) Consider the following statements with respective to *Flexible Fuel Vehicles (FFVs)*

1. It is a modified version of vehicles that could run both on gasoline and doped petrol with different levels of ethanol blends.
2. It will allow vehicles to use all the blends and also run on unblended fuel.

Which of the statement(s) given above is/are *incorrect*?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

28) With respect to *Cairo Consensus*, sometimes seen in the news recently, consider the following statements:

1. It is associated with population control and focuses on meeting the needs of individual women and men, rather than on achieving demographic targets.
2. It introduced the concepts of sexual and reproductive health and reproductive rights.
3. It was adopted at the International Conference on Population and Development (ICPD) held in 1994 at Cairo, Egypt.

Which of the statement(s) given above is/are correct?

a. 1 and 2 only

b. 1 and 3 only

c. 2 and 3 only

d. 1, 2 and 3

29) Consider the following statements with respect to *Karman Line*

1. It is an imaginary boundary between the Earth's Atmosphere and the Outer Space, 100 kilometers above the mean sea level. .

2. It has been recognised as the legal boundary in the Outer Space Treaty adopted in 1967.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

30) Which of the following statement(s) is/are correct with respect to *Electron Bubble*

1. An electron bubble is the empty space created around a free electron in a cryogenic gas or liquid, such as neon or helium.
2. They are typically very small, about 2 nm in diameter at atmospheric pressure.

Select the correct answer using the codes given below:

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

31) Consider the following statements with respect to *Kisan Sarathi*

1. It was launched to facilitate farmers to get 'right information at right time' in their desired language.
2. It was launched jointly by the Ministry of Agriculture and Farmers Welfare and Ministry of Electronics and Information Technology.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

32) Consider the following statements with respect to *Vaquita Porpoises*

1. It is a small porpoise found only in the northern Gulf of California, Sea of Cortez in Mexico.
2. It is a critically endangered species with fewer than 20 of these animals remain.
3. The most significant threat to the vaquita's survival is accidental entanglement in gill-nets, as by-catch.

Which of the statements given above are correct?

a. 1 and 2 only

b. 1 and 3 only

c. 2 and 3 only

d. 1, 2 and 3

33) *Mangerbani Cave Paintings* are found in which of the following states?

a. Punjab

b. Gujarat

c. Haryana

d. Madhya Pradesh

34) Which of the following cities is formerly known as *Bhelsa or Besnagar* in ancient times?

a. Varanasi, Uttar Pradesh

b. Vidisha, Madhya Pradesh

c. Nasik, Maharashtra

d. Jaisalmer, Rajasthan

35) With respect to *Pegasus*, sometimes seen in the news recently, consider the following statements:

1. It is a spyware that infects devices and spies on the victim by transferring data to a master server in an unauthorised manner.
2. It was built and marketed by the Israel based NSO Group.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

36) Arrange the following countries in descending order based on the *forex reserve holdings*:

1. **China**
2. **Japan**
3. **Switzerland**
4. **Russia**
5. **India**

Select the correct answer using the codes given below:

a. 1-2-4-3-5

b. 4-1-2-5-3

c. 1-2-3-4-5

d. 1-4-2-5-3

37) Consider the following statements with respect to *Support for Marginalized Individuals for Livelihood and Enterprise (SMILE)*

1. This scheme covers several comprehensive measures including welfare measures for rehabilitation of persons who are engaged in the act of begging.
2. It is an initiative of Ministry of Social Justice & Empowerment.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

38) Which of the following statement(s) is/are correct with respect to *Floating Constituency*

1. It is reserved for particular cultural groups, since no reservation is allowed on religious grounds in India.
2. Srinagar is the only floating constituency reserved for Kashmiri Pandits, in India which is backed by Articles 371.

Select the correct answer using the codes given below:

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

39) Consider the following statements with respect to *New Generation Akash Missile (Akash-NG)*

1. It is an air-to-air Missile developed by the Defence Research & Development Laboratory (DRDL), Hyderabad in collaboration with other DRDO laboratories.
2. It is a hypersonic missile that can strike targets at a distance of around 60 km and fly at speeds higher than Mach 5.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

40) With respect to *Gondi Language*, consider the following statements:

1. It is one of the 22 languages listed in the Eighth Schedule of Indian Constitution.
2. It is in the 'vulnerable' category on UNESCO's Atlas of the World's Languages in Danger.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

41) Consider the following statements with respect to Indian Green Building Council (IGBC) Platinum Rating

1. It has been awarded for green master planning, policy initiatives and implementation of green infrastructure by Confederation of Indian Industry's (CII's) IGBC.
2. Kandla SEZ (KASEZ) is the First Green SEZ to achieve the IGBC Green Cities Platinum Rating for Existing Cities.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

42) Arrange the following States in descending order based on resources of gold ore (primary):

1. **Bihar**
2. **Rajasthan**
3. **Karnataka**
4. **West Bengal**

Select the correct answer using the codes given below:

a. 1-2-3-4

b. 4-3-2-1

c. 2-1-4-3

d. 1-4-3-1

43) Consider the following statements with respect to Gross Environment Product (GEP)

1. **It reflects the aggregated annual value of goods and services provided by ecosystems to people in a given region.**
2. **Karnataka is the first state in India to introduce Gross Environment Product (GEP).**

Which of the statement(s) given above is/are *incorrect*?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

44) With respect to *Nauka*, sometimes seen in the news recently, consider the following statements:

1. **It is the biggest space laboratory and primary research facility of China.**
2. **It is a part of Harmony of the Heaven, the core module of Tiangong Space Station.**

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

45) Consider the following statements about Dholavira

1. **It is the second largest metropolis of IVC.**
2. **Graves in Dholavira have no mortal remains of humans.**
3. **The decline of Dholavira also coincided with the collapse of Mesopotamia.**

Which of the above statement(s) is/are true?

a. 1 only

b. 1 and 3 only

c. 2 and 3 only

d. All of the above

46) Which of the following statement(s) is/are *incorrect* with respect to *Gharib Nawaz Employment Scheme*

1. It was launched by Ministry of Minority Affairs.
2. It offers monthly stipend during job training and post placement support even after getting employment.

Select the correct answer using the codes given below:

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

47) Consider the following statements with respective to *Ganymede Moon*

1. It is the moon of Jupiter, largest moon in the solar system, contains more water than all of Earth's oceans.
2. Its surface is so hot that water on the surface is always found in the vapour form which represent evaporation of ocean.

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

48) Consider the following statements about Carbon Border Adjustment Mechanism

1. It is a form of carbon tax proposed by Australia to meet its target of curbing carbon emission by atleast 55% by 2030 from 1990 levels.
2. It aims to address carbon leakage by imposing carbon tax on imported goods from countries with less strict climate policies.
3. India is opposed to this mechanism calling it discriminatory.

Which of the statements given above are correct?

a. 1 and 2 only

b. 1 and 3 only

c. 2 and 3 only

d. 1, 2 and 3

49) Consider the following statements about Nano Liquid Urea Fertilizers

1. Nano Liquid Urea Fertilizers reduces the use of urea by upto 50%.
2. India is the first country globally to start commercial production of Nano Urea.

Which of the statements given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

50) With respect to ISRO's EOS-03 Satellite, consider the following statements:

1. **It is a geo-imaging satellite for Earth Observation from Geostationary Orbit.**

2. **It is capable of imaging the whole country four-five times daily and would enable near real-time monitoring of natural disasters like floods and cyclones.**

Which of the statement(s) given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

Answers

1. a

Hispid Hare

- It is found in Southern foothills of the central Himalayas.

- It is rarely found outside the shelter of the tall grassland habitats in its range.

- It is protected under CITES: Appendix I and Schedule I of Wildlife Protection Act of 1972, and listed as Endangered under IUCN Red list.

- Barnadi wildlife sanctuary was established specifically to protect the Pygmy Hog (Sus salvanius) and Hispid Hare (Caprolagus hispidus).

2. c

Bhotia and Anwal

- Their natural biome is forest and mountain and they involve mainly in cultivation, livestock and gathering.

- They follow the semi-nomadic and transhumance migration pattern.

- Recently these people had found mention in the Indigenous People food system report of Food and Agriculture Organization.

- According to report findings they have reduced access to wild edibles, and facing concerns due to reduced reliance on traditional medicine.

3. b

4. d

- *Union Education Minister, Shri Ramesh Pokhriyal 'Nishank' has recently released the Report on United Information System for Education Plus (UDISE+) 2019-20 for School Education in India.*

Highlights of the Report

- As per the UDISE+ report 2019-20, Gross Enrolment Ratio at all levels of school education has improved in 2019-20 compared to 2018-19.

- Pupil Teacher Ratio (PTR) has improved at all levels of school education.

- According to the report, in 2019-20, enrolment of girls from primary to higher secondary is more than 12.08 crore.

- This is a substantial increase by 14.08 lakh compared to 2018-19.

- Between 2012-13 and 2019-20, the Gender Parity Index (GPI) at both Secondary and Higher Secondary levels have improved.

- The UDISE+ report shows a remarkable improvement in the number of schools with functional electricity, with functional computers, internet facility in 2019-20 over the previous year.

- Another major improvement is seen in the number of schools with hand wash facility.

- In year 2019-20, more than 90% schools in India had hand wash facility as compared to only 36.3% in 2012-13.

UDISE+ System

- It is a system of online data collection from the schools which was developed in the year 2018-19 to overcome the issues related to manual data filling in paper format and subsequent feeding at the block or district level, which was in practice in the UDISE data collection system from 2012-13.

- The present publication relates to UDISE+ data for the reference year 2019-20.

5. a

Hawksbill Turtle

- There are five species in Indian waters i.e. Olive Ridley, Green turtle, Loggerhead, Hawksbill, Leatherback.

- Hawksbill sea turtles have a wide range, found predominantly in tropical reefs of the Indian, Pacific, and Atlantic Oceans.

- The Hawksbill turtle is listed as 'Critically Endangered' on the IUCN Red List of Threatened Species.

- They are protected in Indian Wildlife Protection Act of 1972, under Schedule I.

6. b

Global Cybersecurity Index (GCI) 2020

- It is a composite index produced, analysed and published by the International Telecommunication Union (ITU).

- It is a trusted reference that measures the commitment of countries to cybersecurity at a global level.

- The ranking is based on five pillars i.e. legal measures, technical measures, capacity building measures, cooperation and organisational measures.

- The US was ranked on the first spot, indicating highest commitment to cybersecurity.

- India improved its ranking from 47 and has entered the top 10 of a global cybersecurity ranking of countries.

7. c

Kalbeliya Dance

- It is associated with a Rajasthani tribe of the same name.

- It was included in the United Nations Educational, Scientific and Cultural Organizations (UNESCO) list of Intangible Cultural Heritage (ICH) in 2010.

- The dance form consists of swirling; graceful movements that make this dance a treat to behold.

- The movements associated with the Kalbelia also make it one of the most sensuous forms of folk dance in India.

8. c

- *The Vice President of India has recently visited CCMB's LaCONES (Laboratory for the Conservation of Endangered Species) facility.*

Project LaCONES

- In order to support effective conservation measures include both in situ and ex situ using biotechnological tools and techniques in an innovative manner, LaCONES was established.

- Project LaCONES was established in 1998 with the support from Dept. of Biotechnology (DBT), Central Zoo Authority of India (CZA), Council of Scientific and Industrial Research (CSIR) and Government of Andhra Pradesh.

- The laboratory was itself established in 2007.

- This laboratory would strive to promote excellence in conservation biotechnology and serve for conservation of endangered wildlife in India.

- National Wildlife Genetic Resource Bank (NWGRB) was established in 2018 at Centre for Cellular and Molecular Biology's (CCMB's) Laboratory of Conservation of Endangered Species (LaCONES) facility in Hyderabad, Telanagana.
- It is India's first genetic resource bank where genetic material will be stored for posterity which will further the cause of conservation of endangered and protected animals.

9. c

- The Asian elephant is a charismatic species with a long history of co-existence with humans.
- Yet works on male societies of wild elephants based on long-term observations are rare.
- To fill this gap, researchers from Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), an autonomous Institute of the Department of Science and Technology studied associations of male Asian elephants Nagarahole and Bandipur National Parks.

Highlights of the Study

- The time spent by male Asian elephants in all-male and mixed-sex groups depended on the age of the male.
- Adult Asian male elephants preferred to spend their time alone than in mixed-sex or in all-male groups.
- Besides, old males were found mostly in the company of their age peers and less frequently with young males (15 to 30 years of age).
- Also, young males did not disproportionately initiate associations with old males.
- Adult male Asian elephants are less social than females.
- They enter musth -- a mate-searching strategy for old (above 30 years of age) males, annually.
- The researchers hypothesised that when the adult males enter musth, dominance relationships may affect the number of mating opportunities they procure.
- Hence, it might be more crucial for old males than for young males to test strength with each other and settle dominance relationships during their nonmusth time.
- On the other hand, since young males associated less with females during musth than non-musth time, they might also be using their non-musth time to search for mating opportunities.

10. b

LEAF Coalition

- It is an ambitious new public-private initiative designed to accelerate climate action by providing results-based finance to countries committed to protecting their tropical forests.
- It is an initiative with initial participation from the governments of Norway, the United Kingdom, and the United States.
- It is a step towards concretising the aims and objectives of the Reducing Emissions from Deforestation and Forest Degradation (REDD+) mechanism.

11. a

- *Project BOLD (Bamboo Oasis on Lands in Drought) has been recently launched by the Khadi and Village Industries Commission (KVIC).*
- It is the first of its kind exercise in India which was launched from the tribal village NichlaMandwa in Udaipur, Rajasthan.

Project BOLD

- It is a unique scientific exercise serving the combined national objectives of reducing desertification and providing livelihood and multi-disciplinary rural industry support.
- It seeks to create bamboo-based green patches in arid and semi-arid land zones.
- 5000 saplings of special bamboo species – BambusaTulda and BambusaPolymorpha specially brought from Assam – have been planted over 25 bigha (16 acres approx) of vacant arid Gram Panchayat land.

- KVIC has thus created a world record of planting the highest number of bamboo saplings on a single day at one location.

- The project is aligned with Prime Minister Shri Narendra Modi's call for reducing land degradation and preventing desertification in the country.

- The initiative has been launched as part of KVIC's "Khadi Bamboo Festival" to celebrate 75 years of independence "Azadi ka Amrit Mahotsav".

12. c

- *The Department of School Education and Literacy, Ministry of Education will launch National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN Bharat).*

NIPUN Bharat

- The vision of NIPUN Bharat Mission is to create an enabling environment to ensure universal acquisition of foundational literacy and numeracy, so that every child achieves the desired learning competencies in reading, writing and numeracy by the end of Grade 3, by 2026-27.

- NIPUN Bharat will be implemented by the Department of School Education and Literacy and a five-tier implementation mechanism will be set up at the National- State- District- Block- School level in all States and UTs, under the aegis of the centrally sponsored scheme of Samagra Shiksha.

13. b

Inter annual Variations of South West Monsoon

- The southwesterly wind flow occurring over most parts of India and Indian Seas gives rise to southwest monsoon over India from June to September.

- Interannual variations are the variations on the annual cycle of the monsoon producing anomalously wet or dry years.

- The major factors governing interannual variation of south west monsoon are ***El nino Southern oscillation (ENSO) and Indian Ocean Dipole (IOD)***.

- Other ***contributing factors*** are North Atlantic Oscillation (NAO) and Pacific Decadal Oscillations (PDO).

14. b

- *OPEC+ ministers called off oil output talks after the recent clash when the United Arab Emirates (UAE) balked at a proposed eight-month extension to output curbs.*

Organization of the Petroleum Exporting Countries (OPEC)

- It is an intergovernmental organization of 13 countries.

- Founded on 14 September 1960 in Baghdad by the five members constitutes Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.

- In addition to formal OPEC members, 10 additional oil exporting countries form the OPEC+.

OPEC+ countries excluding OPEC

- Russia, Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, South Sudan, and Sudan

15. c

- *The Union Government has recently created a new **Ministry of Cooperation**.*

- The move aims to realize the vision of 'Sahkar se Samriddhi' (through cooperation to prosperity).

- This ministry will provide a separate administrative, legal and policy framework for strengthening the cooperative movement in the country.

- It will help deepen Co-operatives as a true people based movement reaching up to the grassroots.

- The Ministry will work to streamline processes for 'Ease of doing business' for co-operatives and enable development of Multi-State Co-operatives (MSCS).

Creation of Ministries/Departments

- The ***Government of India (Allocation of Business) Rules, 1961*** are made by the

- President of India under Article 77 of the Indian Constitution for the allocation of business of the Government of India.

- The Ministries/Departments of the Government are created by the President on the advice of the Prime Minister *under these Rules*.

16. d

- *Arisaema Translucens, popularly known as Cobra Lilies started blooming in Upper Niligiris.*

- These flowers bloom during peak monsoon season from June to August.

Cobra Lily

- The incredibly rare "Arisaema Translucens", was rediscovered in 2017 in the western Nilgiris after 84 years when it was last collected in 1932.

- They can be found only in a small area measuring less than 10 square kilometres in the Nilgiris.

- The *Toda tribals of the Nilgiris*, who know the plant well, have an embroidery motif known as the '*podwarshk*', which resembles it.

- The indigenous community could predict the early arrival of monsoon from the blooming of the cobra lily's 'translucens'.

- Prized for their beauty around the world, cobra lilies are at even greater risk of extinction from the commercial trade in exotic plants.

- Cobra lilies have vanished in the past decades along with the disappearance of the shola tree patches in which they were found.

17. c

Sir Chettur Sankaran Nair

- Born in the year 1857 in Palakkad district, he is known for being a passionate advocate for social reforms and a firm believer in the self-determination of India.

- In 1897, he became the youngest president of the INC in the history of the party till then, and the only Malayali to hold the post ever.

- In 1904, he was appointed as Companion of the Indian Empire by the King-Emperor and in 1912 he was knighted.

- He was appointed as a permanent judge in the Madras High Court in 1908.

18. c

- *The world's first solo motorcycle expedition undertaken by Miss Kanchan Ugusandi, covering 18 treacherous passes in Northern Himalayan ranges concluded recently at Seema Sadak Bhawan in New Delhi.*

- The month-long expedition witnessed many firsts by a solo woman rider.

- Miss Ugusandi has become *the first solo woman biker to scale the Umlingla Pass*, *the first woman to cover the 18 passes* and also *the first woman to traverse a distance of 3,187 kilometre* from New Delhi-Manali-Leh -Umlingla-Delhi in one go.

Umling La

- The La, located at an altitude of 19,300ft, has overtaken Khardung La Pass to become the highest motorable road in the world.

- It was constructed by the Border Roads Organization (BRO) as part of "Project Himank".

- The 86-km-long strategic road through Umling La connects Chisumle and Demchok villages, located 230km from Leh.

- The Project Himank has already constructed roads like Khardung La at an altitude of 17,900 ft and Chang La Pass at 17,695 ft in Leh by connecting Nubra valley and Durbuk valley in the cold desert.

19. a

- *Climate Researchers at Interdisciplinary Programme in Climate Studies (IDPCS), a Centre of Excellence at IIT Bombay supported by the Department of Science and Technology has recently investigated the impact of agricultural water use on the Indian Summer Monsoon using a climate model.*

- From the study, it has been discovered that ***excess irrigation over northern India shifts the September monsoon rainfall towards the north-western part of the subcontinent*** and increases widespread weather extremes over Central India.

- These meteorological hazards expose the vulnerable farmers and their crops to risks of failure.

- The study which establishes that ***monsoon precipitation is sensitive to the choice of irrigation practices*** in South Asia can help plan agricultural practices in this region.

Background

- South Asia is one of the most heavily irrigated regions of the world, largely using groundwater, and its major summer crop is paddy which is cultivated in water flooded fields.

- Hence it was pertinent to study how such practices can influence the monsoons which form the fulcrum of this agro-based economy.

20. b

- *The State of Telangana is preparing for the Bonalu festival which will be celebrated from July 11 according to the Hindu calendar month of Aashadam with the religious procession starting from Langar Houz to the temple near Bala Hissar on top of the Golconda Fort.*

- The annual festival of Bonalu has increased in importance after the formation of Telangana State with government sponsorship and enthusiastic participation of several ministers in the State Cabinet.

Bonalu

- It is a Hindu festival where Goddess Mahakali is worshiped.

- It is an annual festival celebrated in the twin Cities Hyderabad and Secunderabad and other parts of Telangana state, India.

- The festival is being celebrated usually during Ashada Masam that falls in July/August.

- Special poojas are performed for goddess Yellamma during the first and last day of the festival.

- The festival is considered as a form of thanksgiving to the Goddess after the fulfillment of vows.

- Bonam literally means Meal in Telugu, which is an offering to the Mother Goddess.

- Women folk in household prepare rice that is cooked along with Milk, Jaggery in a New Earthen or Brass Pot, which is adorned with Neem Leaves, Turmeric and Vermilion.

- Women carry these pots on their heads and make an offering of Bonam, including Bangles and Saree to the Mother Goddess at Temples.

- Bonalu involves worship of Kali in her various forms such Mysamma, Pochamma, Yellamma, Dokkalamma, Pedamma, Poleramma, Ankalamma, Maremma, Nookalamma etc.

21. b

Indrajaal Weapon

- Indrajaal is an autonomous defence weapon system that uses technologies such as Artificial Intelligence, cyber security and robotics to identify and counter threats.

- It is India's first 100 percent indigenous unified, distributed and wide-area Autonomous Drone Defense Dome.

- Each system is capable of protecting a large area of 1000 to 2000 sq. km against threats from Unmanned Aerial Vehicles or UAVs and incoming weapons.

- Indrajaal is a paradigm shift in the drone warfare system including Low Radar cross-section (RCS) threat warfare.

22. c

India Industrial Land Bank (ILLB)

- It is a GIS-based one-stop repository of all industrial infrastructure-related information – connectivity, infra, natural resources & terrain, plot-level information on vacant plots, line of activity, and contact details.

- The portal was developed by the Department for promotion of Industry & Internal Trade, Ministry of Commerce & Industry.

- As an additional tool for investors, for making industrial parks and related information easily accessible, the DPIIT developed first version of India Industrial Land Bank (IILB) Mobile App in collaboration with MeitY and Invest India.

- Currently, the IILB has approximately 4000 industrial parks mapped across an area of 5.5 lakh hectare of land, serving as a decision support system for investors scouting for land remotely.

- The system has been integrated with industry-based GIS systems of 17 states to have details on the portal updated on a real-time basis and will achieve pan-India integration by December 2021.

23. c

- *Indian researchers have recently spotted an extremely bright, hydrogen deficient, fast-evolving supernova that shines with the energy borrowed from an exotic type of neutron star with an ultra-powerful magnetic field.*

- Such type of supernovae called Super Luminous Supernova (SLSNe).

- SN 2020ank, which was first discovered by the Zwicky Transient Facility on 2020, was studied by scientists from Aryabhatta Research Institute of Observational Sciences (ARIES) Nainital.

- The apparent look of the SN was very similar to other objects in the field.

- However, once the brightness was estimated, it turned out as a very blue object reflecting its brighter character.

- Deep study of such ancient spatial objects can help probe the mysteries of the early universe.

Supernova (SNe)

- Supernovae are highly energetic explosions in the universe releasing an enormous amount of energy.

Super Luminous Supernova (SLSNe)

- It is a type of stellar explosion with luminosity 10 or more times higher than that of standard supernovae.

- They occur very rare because they are generally originated from very massive stars (minimum mass limit is more than 25 times to that of the Sun), and the number distribution of such massive stars in our galaxy or in nearby galaxies is sparse.

- Among them, SLSNe-I has been counted to about 150 entities spectroscopically confirmed so far.

- These ancient objects are among the least understood SNe because their underlying sources are unclear, and their extremely high peak luminosity is unexplained.

24. c

- *Twitter CEO Jack Dorsey has recently announced his payments firm Square would soon build a hardware wallet to store bitcoin.*

- The wallet will be a type of plug-in device, much like a USB pendrive that stores, manages and secures a user's crypto assets.

- Each digital asset is linked to a cryptographic password called a 'private key' to allow users to access it.

- This key safeguards cryptocurrencies from theft and unauthorised access.

- The asset owner, with the help of a secure hardware wallet, can access the private key to buy and sell crypto assets from anywhere.

- Most hardware wallets allows users to manage multiple accounts; some even allow users to connect to their Google or Facebook accounts.

- Popular hardware wallets include Trezor, Ledger, KeepKey and Prokey.

Hardware Vs Software Wallet

- Cryptocurrency keys can be stored in two kinds of wallets - software and hardware.

- Software wallets are like smartphone apps that digitally store private keys.

- Most software wallets don't charge users to store private keys, but may collect commission for trading via the app.

- These wallets can be vulnerable to malware.

- Hardware wallets are physical devices act like cold storage for confidential keys.

- The passwords are protected by a PIN, making it difficult for hackers to extract private keys as the information is not exposed to the Internet.

25. b

- *The decision to examine Ramappa Temple for a World Heritage Site inscription has been deferred by the World Heritage Committee.*

Ramappa Temple

- The Ramalingeswara Temple which is popularly known as the Ramappa temple is one such amazing piece of art that stands as a testimony of the royal Kakatiyas.

- The temple got its name Ramappa because of its chief sculptor Ramappa.

- It's probably the only temple in the country to be known by the name of its sculptor.

- The medieval Deccan Ramappa Temple which dates back to 1213 AD, was built by the patronage of the Kakatiya ruler Kakati Ganapathi Deva under the authority of his Chief Commander Rudra Samani at the place known as Ranakude in the Atukuru province.

- The Ramappa temple is the right destination for people who admire architectural brilliance and have a panoramic view of true scenic beauty.

- The temple is situated in Palampet village of the Venkatapur Mandal, in Mulug Taluq of Warangal.

- The Ramappa temple finds its hold on a 6 feet high platform on a cruciform plan.

- The temple's chamber is crowned with a shikharam and is surrounded by pradakshinapatha.

- At the entrance of the temple, we can find a Nandi mandapam. An imposing Nandi vigraham stands on it.

26. c

- *As countries start lifting curbs imposed on societies due to the COVID-19 pandemic, news reports have indicated higher rates of respiratory infections, even unseasonal diseases such as influenza and the Respiratory Syncytial Virus (RSV).*

- Doctors have called this the "immunity debt" brought on by non-pharmaceutical interventions (NPIs) put in place to reduce the spread of the SARS-CoV-2 virus.

Immunity Debt

- It is a situation where people avoided each other during the pandemic lockdowns, they failed to build up the immunity against viruses that comes from normal contact.

- The phenomenon occurs because measures like lockdowns, hand-washing, social distancing and masks are not only effective at controlling Covid-19, but it also suppress the spread of other illnesses that transmit in a similar way, including the flu, common cold, and lesser-known respiratory illnesses like RSV.

27. d

Flexible Fuel Vehicles (FFVs)

- Union govt will issue new guidelines for use of flexible fuel vehicles (FFVs) using flex engines by October.

- The guidelines will specify engine configuration and other changes required in vehicles to conform to stipulated changes in fuel mix.

- FFVs have compatible engines to run on more than 84 per cent ethanol blended petrol.

- FFVs are aimed at reducing the use of polluting fossil fuels and cutting down harmful emissions.

- For India, FFVs will present a different advantage as they will allow vehicles to use different blends of ethanol mixed petrol available in different parts of the country.

28. d

- *The Uttar Pradesh government has recently released the draft Uttar Pradesh Population (Control, Stabilisation and Welfare) Bill, 2021.*

- Incentives and penalties form an integral component of the draft bill.

- These steps are aimed at reducing U.P.'s total fertility rate (TFR), recorded as 2.7 by the National Family Health Survey-4 in 2016, a figure only lower than that of neighbouring Bihar (3.1 as of 2020 in NFHS-5).

- Instead of taking steps towards the Cairo Consensus which calls for promotion of reproductive rights, empowering women, universal education, maternal and infant health, the draft bill have taken the beaten path of a mixture of incentives and penalties to tackle what is a socio-economic issue as a demographic one.

Cairo Consensus

- The International Conference on Population and Development (ICPD) was convened in 1994 under the auspices of the United Nations and was organized by a secretariat composed of the Population Division of the then UN Department for Economic and Social Information and Policy Analysis (now the Department of Economic and Social Affairs) and UNFPA.

- The Conference adopted the Programme of Action by consensus, also known as the Cairo Consensus, which emphasized the fundamental role of women's interests in population matters and ***introduced the concepts of sexual and reproductive health and reproductive rights***.

- The Programme of Action, adopted by acclamation on 13 September 1994, emphasizes the integral linkages between population and development and focuses on meeting the needs of individual women and men, rather than on achieving demographic targets.

- The Programme of Action builds upon the World Population Plan of Action, adopted at the World Population Conference held in Bucharest in 1974, and the recommendations adopted at the International Conference on Population, held in Mexico City in 1984.

29. a

- *A British entrepreneur Richard Branson hurtled into space aboard his own winged rocket ship recently, beating out fellow billionaire Jeff Bezos.*

- The nearly 71-year-old Branson and five crewmates from his Virgin Galactic space-tourism company reached an altitude of about 53 miles (88 kilometers) over the New Mexico desert enough to experience three to four minutes of weightlessness and see the curvature of the Earth and then safely glided to a runway landing.

- But experts and space enthusiasts are in doubt whether the height to which he travelled can be termed 'space'.

Karman Line

- It is an attempt to define a boundary between Earth's atmosphere and outer space.

- The ***most widely accepted boundary*** of space is known as the Karman line, 100km above mean sea level.

- But the United States uses 80km as the cutoff point.

- The Karman line has been compared to international waters, as there are no national boundaries and human laws in force beyond the line.

- It was named after aerospace pioneer Theodore von Karman.

- But, various countries and entities define space boundary differently for various purposes.

- International law does not define the edge of space, or the limit of national airspace.

- Defining a legal boundary of what and where space is can help avoid disputes and keep track of space activities and human space travel.
- Some countries, including the United States, believe that defining or delimiting outer space is not necessary.

30. c

Electron Bubbles

- An electron injected into a superfluid form of helium creates a Single Electron Bubble (SEB), a cavity that is free of helium atoms and contains only the electron.
- The shape of the bubble depends on the energy state of the electron.
- Super fluidity is the frictionless flow and other exotic behaviour observed in liquid helium at temperatures near absolute zero (–273.15 °C), and similar frictionless behaviour of electrons in a superconducting solid.

31. c

- *Government of India has recently launched a digital platform Kisan Sarathi, to facilitate farmers to get right information at right time in their desired language.*
- The platform Kisan Sarathi was jointly launched by the Ministry of Agriculture and Farmers Welfare and Ministry of Electronics and Information Technology on the occasion of 93rd ICAR Foundation Day.
- This initiative will empower farmers with the technological interventions and reach farmers in remote areas.

32. d

- *The Mexican government's decision to loosen its policy of keeping a fishing free zone around a protected area in the Gulf of California region was a setback to keeping alive a near-extinct porpoise species.*
- Mexico had previously banned boats entering the species' last sanctuary off the coast of Mexico, known as the "zero tolerance zone".
- But the Ministry of Agriculture recently announced plans to regulate how many fishing boats can enter the area.
- Some fishing vessels had already been flouting the ban.

Vaquita Porpoise

- The vaquita is a small porpoise found only in the northern Gulf of California (Sea of Cortez) in Mexico.
- Fewer than 20 of these animals remain, making the vaquita the most endangered marine mammal in the world.
- Like many other species of porpoise, vaquita tend to be shy and elusive, avoiding boats when approached.
- They tend to prefer turbid, nutrient-rich coastal waters which attract their preferred prey: small fish, cephalopods and crustaceans.
- The single most significant threat to the vaquita's survival is accidental entanglement.
- Nearly one out of every five vaquita get entangled and drown in gillnets intended for other marine species like the totoaba, a critically endangered fish also found in the upper Gulf of California.

Porpoises

- They are among the smallest members of the cetacean family (whales, porpoises and dolphins).
- They are only distant relatives of dolphins.
- There are only seven species of porpoise; the most popular being the widely distributed harbour porpoise.

33. c

Mangerbani Cave Paintings

- It was discovered at the prehistoric site of Mangerbani hill forest, Faridabad (Haryana).
- It may be one of the biggest Palaeolithic sites in the Indian sub-continent, where Stone Age tools were recovered from open-air sites as well as from rock shelters.

- It is for the first time that a prehistoric site, along with cave paintings and rock art of a large magnitude, has been found in Haryana.

- The paintings are yet to be dated but at least some of them belong to the Upper Palaeolithic period in all likelihood.

34. b

Vidisha

- Vidisha is formerly known as Bhelsa and known as Besnagar in ancient times is a city in the state of Madhya Pradesh.

- The name "Vidisha" is derived from the nearby river "Bais", mentioned in the Puranas.

- Vidisha is considered to be Puranakshetras Jain tirtha. Vidisha is believed to be the birthplace of Shitalanatha, the tenth tirthankar.

- The Heliodorus pillar a stone column that was erected around 113 BCE in located near Vidisha.

35. c

- *A global collaborative investigative project has recently discovered Israeli spyware Pegasus was used to target thousands of people across the world.*

Pegasus Spyware

- It is a spyware that infects victims and spies on the victim by transferring data to a master server in an unauthorised manner.

- It was built and marketed by the Israel based company, NSO Group.

- The company claims to sell it only to Vetted foreign governments worldwide.

- Pegasus is the very basic form, can infect devices that are connected to the Internet.

- Some updated versions can also infect phones even without the victim clicking on any links or messages.

- The software can, based on instructions from a remote server, automatically turn on the microphone and Camera and look into chats, contacts and data backup.

36. c

- With India's forex reserves at $608.99 billion as on June 25, 2021 stood, India has emerged as the fifth largest foreign exchange reserves holder in the world after China, Japan, Switzerland and Russia.

- This was stated by Minister of State for Finance Shri Pankaj Chaudhary in a written reply to a question in the Lok Sabha recently.

37. c

- *The Ministry of Social Justice and Empowerment has formulated a scheme Support for Marginalized Individuals for Livelihood and Enterprise (SMILE).*

- The Ministry has also initiated pilot projects on Comprehensive Rehabilitation of Persons engaged in the act of Begging in ten cities namely Delhi, Bangalore, Chennai, Hyderabad, Indore, Lucknow, Mumbai, Nagpur, Patna and Ahmadabad.

Support for Marginalized Individuals for Livelihood and Enterprise (SMILE)

- The scheme includes subscheme - 'Central Sector Scheme for Comprehensive Rehabilitation of persons engaged in the act of Begging'.

- This scheme covers several comprehensive measures including welfare measures for persons who are engaged in the act of begging.

- Several comprehensive measures include survey and identification, mobilization, basic hygiene and medical facilities, providing basic documentation, counselling, rehabilitation, education, skill development and sustainable settlement of persons engaged in begging.

- The scheme would be implemented with the support of State/UT Governments/Local Urban Bodies, Voluntary Organizations, Community Based Organizations (CBOs), institutions and others.

- Scheme provides for the use of the existing shelter homes available with the State/UT Governments and Urban local bodies for rehabilitation of the persons engaged in the act of Begging.

- In case of non-availability of existing shelter homes, new dedicated shelter homes are to be set up by the implementing agencies.

38. a

Floating Constituency

- Kashmiri pandits have proposed a floating constituency which would be reserved for contesting and voting only for kashmiri pandit migrants fron J&K on similar lines as in Sikkim.

- The only floating constituency of India sangha model for Lama sanghas in Sikkim is backed in the constitution of India under Articles 371(F)

- It is a constituency without any geographical boundaries and one for which only Buddhist monks registered with 51 monasteries within the state can contest and vote.

39. d

- *The Defence Research and Development Organisation (DRDO) have successfully flight-tested the latest Akash **surface-to-air** missile system recently.*

- The ministry claims that the new version of the Akash missile (Akash-NG) can strike targets at a distance of around 60 km and fly at a speed of up to **Mach 2.5**.

- Speeds greater than five times the speed of sound (Mach 5) are often referred to as hypersonic.

- The new missile system has been developed by the Defence Research & Development Laboratory (DRDL), Hyderabad.

- It has been built in collaboration with other wings of the defence research organisation.

40. c

- *People belonging to the Koya tribe have recently observed the Gondi Language Day in the Agency areas of East Godavari district, and sought inclusion of their language in the Eighth Schedule of the Constitution.*

- According to an official document of the Ministry of Home Affairs, there are demands for the inclusion of 38 languages, including Gondi, in the Eighth Schedule.

- In 2004, four languages – Bodo, Dogri, Maithili, and Santhali – were added to the Eighth Schedule, which comprised of 22 languages.

Gondi Language

- Gondi is a language spoken in six States of Madhya Pradesh, Gujarat, Telangana, Maharashtra, Chhattisgarh and Andhra Pradesh.

- Gondi has more speakers than many official languages listed in the Eighth Schedule of the Constitution.

- Despite so many people speaking the language, Gondi is in the 'vulnerable' category on UNESCO's Atlas of the World's Languages in Danger.

- Most of the Gondi dialects are still inadequately recorded and described.

- The more important dialects are Dorla, Koya, Madiya, Muria, and Raj Gond.

41. c

- *Kandla SEZ (KASEZ) was awarded IGBC Platinum Rating recently.*

- It is the First Green SEZ to achieve the IGBC Green Cities Platinum Rating for Existing Cities.

- IGBC Platinum rating has been awarded for 'Green master planning, policy initiatives and implementation of green infrastructure' by CII's Indian Green Building Council (IGBC).

- The recognition is set to pave way for all the other SEZs in the country to emulate the green initiative and efforts of Kandla SEZ.

42. a

- As per National Mineral Inventory data, the total reserves/resources of gold ore (primary) in the country have been estimated at 501.83 million tonnes.

- In India, largest resources of gold ore (primary) are located in Bihar (44%) followed by Rajasthan (25%), Karnataka (21%), West Bengal (3%), Andhra Pradesh (3%), Jharkhand (2 %).

- The remaining 2% resources of ore are located in Chhattisgarh, Madhya Pradesh, Kerala, Maharashtra and Tamil Nadu.

43. b

- *The Uttarakhand government announced that it will initiate valuation of its natural resources in the form of 'Gross Environment Product' (GEP), said to be along the lines of Gross Domestic Product (GDP).*

- ***Uttarakhand*** is the first State in India to introduce the Gross Environment Product (GEP).

Gross Environment Product (GEP)

- Gross Environment Product (GEP) is an assessment system to measure the ecosystem services of any area.

- It reflects the aggregated annual value of goods and services provided by ecosystems (forests, water bodies, oceans, etc.) to people in a given region, such as at district levels, state, and country.

- It entails the establishment of a natural capital accounting framework by integrating ecological benefits into common measures of economic growth such as GDP.

- It summarizes the value of ecosystem services in a single monetary metric.

44. d

- *Russia's space agency Roscosmos had recently launched the Nauka module.*

- Nauka was launched from the Baikonur Cosmodrome in Kazakhstan using a Proton rocket, is scheduled to be integrated with the ISS.

- Pirs, a Russian module on the International Space Station (ISS) used as a docking port for spacecraft and as a door for cosmonauts to go out on spacewalks.

- It was detached recently and in its place, Nauka will serve as the country's main research facility on the space station.

- Nauka — meaning "science" in Russian — is the biggest space laboratory Russia has launched to date, and will primarily serve as a research facility.

- It is also bringing to the ISS another oxygen generator, a spare bed, another toilet, and a robotic cargo crane built by the European Space Agency (ESA).

- The ISS is a pathbreaking collaborative effort between five participating space agencies: NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA (Europe) and CSA (Canada).

45. c

- After Mohen-jo-Daro, Ganweriwala and Harappa in Pakistan and Rakhigarhi in Haryana of India, Dholavira is the 5th largest metropolis of IVC.

- The site has a fortified citadel, a middle town and a lower town with walls made of sandstone or limestone instead of mud bricks in many other Harappan sites.

- While unlike graves at other IVC sites, no mortal remains of humans have been discovered at Dholavira.

- The memorials that contain no bones or ashes but offerings of precious stones, etc. add a new dimension to the personality of the Harappans.

- The beads peculiar to the Harappan workmanship have been found in the royal graves of Mesopotamia, indicating Dholavira used to trade with the Mesopotamians.

- Its decline also coincided with the collapse of Mesopotamia, indicating the integration of economies.

- Harappans, who were maritime people, lost a huge market, affecting the local mining, manufacturing, marketing and export businesses once Mesopotamia fell.

46. d

Gharib Nawaz Employment Scheme

- It was launched by the Ministry of Minority Affairs in 2017.

- Maulana Azad Education Foundation, an autonomous body under the aegis of Ministry of Minority Affairs, implements the Scheme.

- The main aim of this scheme is to provide short term job oriented skill development courses to minorities' youth in order to enable them for skill based employment.

- The monthly stipend for maximum of three months and post placement support for maximum of two months after getting employment are also being paid to the beneficiaries directly into their account.

47. a

Ganymede

- Ganymede is located half a billion miles (over 600 million km) away, and Hubble can follow changes on the moon and reveal other characteristics at ultraviolet and near-infrared wavelengths.

- However, temperatures there are so cold that water on the surface is frozen solid.

- Ganymede's ocean would reside roughly 100 miles below the crust; therefore, the water vapor would not represent the evaporation of this ocean.

- Scientists used new and archival datasets from NASA's Hubble Space Telescope and found first evidence of Water vapor at Jupiter's Moon Ganymede.

48. c

- Carbon Border Adjustment Mechanism is proposed by EU to meet its target of curbing carbon emission by atleast 55% by 2030 from 1990 levels.

- It proposed to impose a carbon tax on imported goods from countries with less strict climate policies.

- It aims to create a level playing field between imports and domestic production.

- India, china and other developing countries opposed to this mechanism.

49. c

- Two state-owned fertilizer firms, National Fertilisers Limited (NFL) and Rashtriya Chemicals and Fertilisers Ltd (RCF) signed a MoU with fertilizer cooperative, IFFCO to push production of Nano urea liquid.

- India has become the first country globally to start commercial production of Nano urea.

- There is an imbalanced use of fertilizers in India and this is deteriorating the health of soil.

- Imbalanced use is also causing water and air pollution.

- More production of Nano urea liquid will help in reducing the use of urea by up to 50% and it will also protect the health of the soil.

- The Nano urea liquid is expected to potentially replace 137 lakh tonnes of conventional urea usage by 2023.

- Even cost wise, this is cheaper than the conventional urea.

50. c

- ISRO has realised a geo-imaging satellite, "EOS-03", for Earth Observation from Geostationary Orbit.

- It is scheduled for launch in the third quarter (Q3) of 2021.

EOS-03

- It is capable of imaging the whole country four-five times daily and would enable near real-time monitoring of natural disasters like floods and cyclones.

- In addition to natural disasters, EOS-03 would also enable monitoring of water bodies, crops, vegetation condition, and forest cover changes.