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APRIL 2021

INDEX

APRIL 2021

G.S PAPER I

1. GEOGRAPHY

1.1 IMD's First-Stage Forecast for 2021

Why in news?

India Meteorological Department (IMD) released its first-stage forecast for the south-west monsoon for 2021.

How is 2021 likely to be?

- IMD's forecast suggests that monsoon in 2021 may not be as bountiful as in last year; it does however offers some hope.

- The forecast for the south-west monsoon indicates that the quantum of rainfall is likely to be at 98% of the long period average.

- It estimates a 61% probability of the country ending up with normal or excess rains.

    o It actually expected rainfall at 100% of the long period average with a 70% probability of normal to excess rains.

What is the need for caution though?

- A normal monsoon this year is obviously welcome as it could help agriculture GDP expand for the third consecutive year.

- Nevertheless, these preliminary forecasts cannot be taken for the good prospects for the farm economy.

- IMD's first-stage long-range forecast is generally too early to capture the evolving impact of phenomena such as the El Nino Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD).

- Notably, these have proved to be critical swing factors influencing south-west monsoon performances in the past.

- IMD expects the current year's monsoon to be less generous than last year's.

- While neutral conditions now prevail on both the ENSO and IOD, IMD is watchful on negative IOD conditions developing as the season progresses.

- Last year, it was an unfolding La Nina that led to rainfall eventually exceeding IMD's estimates at 109% of the long-term average.

- Also, IMD has been improving its record at foreseeing normal and excess monsoon years.

- But, it has tended to over-estimate rainfall in drought years such as 2002, 2009, 2014 and 2015.

- On this score, its second-stage forecast in June, factoring in evolving weather conditions, is somewhat more reliable.

- There is also the fact that three consecutive normal monsoon years have been quite rare for India.

G.S PAPER II

2. POLITY

2.1 Disturbing Order

Why in news?

Recently, Varanasi civil court ordered Archaeological Survey of India to conduct a survey to ascertain whether the Gyanvapi mosque was built over a demolished Hindu temple.

Why was the order issued now?

- Earlier petitioners have filed a suit as representatives of Hindu faith to reclaim the land on which the mosque stands.

- Now they have succeeded in getting the court to commission an ASI survey to look for the evidence.

- This order has been issued despite the fact that the Allahabad High Court reserved its order and it is yet to pronounce the ruling.

- It is not clear why the civil judge did not wait for the ruling and went ahead with the directive to the ASI.

- The court also said that by an order in 1997 it decided that the suit was not barred by Places of Worship (Special Provisions) Act, 1991.

What does Places of Worship Act, 1991 say?

- The act says all pending suits concerning the status of places of worship will get abated and none can be instituted.

- It also froze the status of all places of worship, barring the then disputed site in Ayodhya, as on August 15, 1947.

- An exception to this act is- any place of worship that was an archaeological site or ancient monument covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958.

What will happen after this order?

- It will open the floodgates for another prolonged religious dispute.

- It will likely give a fillip to majoritarian forces that earlier carried on the Ram Janmabhoomi movement over a site in Ayodhya.

- These forces conspired to illegally demolish the Babri Masjid Mosque.

- Moreover this order in gross violation of the explicit legislative prohibition on any litigation over the status of places of worship.

What can we infer from this?

- Regardless of the merits of either side's case, attempts to revive disputes buried by law is a serious setback to the cause of secularism.

- It undermines harmony and peaceful coexistence.

- It is highly worrying that court admitted such contention over religious sites.

- It also poses new challenges to the wisdom of Parliament.

2.2 Ensuring Quality Justice Delivery - Lok Adalats

What is the issue?

The Lok Adalats system must look beyond swift disposal of cases and focus on just and fair outcomes.

What are Lok Adalats?

- Access to justice for the poor is a constitutional mandate to ensure fair treatment under the legal system.

- Hence, Lok Adalats (literally, 'People's Court') were established to make justice accessible and affordable to all.

- Lok Adalat is one of the alternative dispute redressal mechanisms.

- It is a forum where disputes/cases pending in the court of law or at pre-litigation stage are settled/ compromised amicably.

- Lok Adalats have been given statutory status under the Legal Services Authorities Act, 1987.

- Motor-accident claims, disputes related to public-utility services, cases related to dishonour of cheques, and land, labour and matrimonial disputes (except divorce) are usually taken up by Lok Adalats.

How did Lok Adalats evolve?

- Lok Adalats had existed even before the concept received statutory recognition.

- In 1949, Harivallabh Parikh, a disciple of Mahatma Gandhi, popularised them in Rangpur, Gujarat.

- The Constitution (42nd Amendment) Act, 1976, inserted Article 39A to ensure "equal justice and free legal aid".

- To this end, the Legal Services Authorities Act, 1987, was enacted by the Parliament.

- It came into force in 1995 -
    i.   to provide free and competent legal services to weaker sections of the society
    ii. to organise Lok Adalats to secure that the operation of the legal system promotes justice on a basis of equal opportunity

Why are Lok Adalats significant?

- The Indian judicial system is often criticised, perhaps justifiably, for its endemic delays and excessive backlogs.

- Over 66,000 cases are pending before the Supreme Court, over 57 lakh cases before various HCs.

- Over 3 crore cases are pending before various district and subordinate courts.

- As a result, litigants are forced to approach Lok Adalats mainly because it is a party-driven process, allowing them to reach an amicable settlement.

What are the advantages?

- Lok Adalats offer parties speed of settlement, as cases are disposed of in a single day.

- In this aspect, it is better when compared to litigation, and even other dispute resolution devices, such as arbitration and mediation.

- It also offers procedural flexibility, as there is no strict application of procedural laws such as the Code of Civil Procedure, 1908, and the Indian Evidence Act, 1872.

- There is also economic affordability, as there are no court fees for placing matters before the Lok Adalat.

- Another advantage is the finality of awards, as no further appeal is allowed.

- This prevents delays in settlement of disputes.

- More importantly, the award issued by a Lok Adalat, after the filing of a joint compromise petition, has the status of a civil court decree.

What are the concerns to be addressed?

- The Supreme Court, in State of Punjab vs Jalour Singh (2008), held that a Lok Adalat is purely conciliatory.

- It has no adjudicatory or judicial function.

- As compromise is its central idea, there is a valid concern that in the endeavour for speedy disposal of cases, it undermines the idea of justice.

- In a majority of cases, litigants are pitted against powerful entities such as insurance companies, banks, electricity boards, among others.

- In many cases, compromises are imposed on the poor who often have no choice but to accept them.

- In most cases, such litigants have to accept discounted future values of their claims instead of their just entitlements, or small compensations.

- It is being done just to bring a long-pending legal process to an end.

- Similarly, poor women under the so-called 'harmony ideology' of the state are virtually dictated by family courts to compromise matrimonial disputes.

- Even a disaster like the Bhopal gas tragedy was coercively settled for a paltry sum, with real justice still eluding thousands of victims.

2.3   Defining the & Nature of ECI's Powers

What is the issue?

- With recent assembly elections in some states, the role of Election Commission of India (ECI) is again into sharp focus.

- It becomes imperative to reflect on the confusion about the extent and nature of the powers that are available to the Election Commission.

How has the ECI's role and powers evolved?

- Interestingly, in the ECI's history, before T.N. Seshan came on the scene as the Chief Election Commissioner, no one ever knew or felt that the ECI had any powers.

- Seshan discovered the ECI's powers hidden in Article 324 of the Constitution.

- It was then used to discipline unruly political parties which had till then believed that it was their birth right to rig elections.

- From then on, there was a very high level of confidence about the ECI's role restoring the purity of the elected legislative bodies in the country.

- It became easier for Seshan to locate the powers of the ECI after the Supreme Court's ruling in Mohinder Singh Gill vs Chief Election Commissioner (AIR 1978 SC 851).

- The Court ruled that Article 324 contains plenary powers to ensure free and fair elections.

- These are vested in the ECI which can take all necessary steps to achieve this constitutional object.

- All subsequent decisions of the SC reaffirmed Gill's decision.

- Thus, the ECI was fortified by these court decisions in taking tough measures.

How does the model code of conduct work?

- The model code of conduct issued by the ECI is a set of guidelines.

- This is meant for political parties, candidates and governments to adhere to during an election.

- This code is based on consensus among political parties.
    - Its origin can be traced to a code of conduct for political parties prepared by the Kerala government in 1960 for the Assembly elections.
    - It was adopted and refined and enlarged by the ECI in later years.
    - It was enforced strictly from 1991 onwards.

- The code has been issued in exercise of ECI's powers under Article 324.

- Besides the code, the ECI issues from time to time directions, instructions and clarifications on issues that crop up in the course of an election.

What are the grey areas?

- Since it is a code of conduct framed on the basis of a consensus among political parties, it has not been given any legal backing.

- It was recommended that the code should be made part of the Representation of the People Act 1951.

- But, the ECI did not agree to it.

- This is because once it becomes a part of law, all matters connected with its enforcement will be taken to court, which would delay elections.

- The position taken by the ECI is sound from a practical point of view.

- But then, the question about the enforceability of the code remains unresolved.

- Moreover, the commission may suspend or withdraw recognition of a recognised political party if it refuses to observe the model code of conduct.

- Paragraph 16A of the Election Symbols (Reservation and Allotment) Order, 1968 mentions this.

- The withdrawal of the recognition of a party recognised under these orders seriously effects the functioning of political parties.

- When the code is legally not enforceable, the ECI resorting to a punitive action such as withdrawal of recognition is arbitrary.

- Besides these, there are two crucial issues which need to be examined in the context of the model code and the exercise of powers by the ECI under Article 324:
    1. Transfer of officials
    2. Administrative moves

What is the role in transfer of officials?

- Abrupt transfer of senior officials working under State governments by an order of the commission is evident.

- Probably, the observers of the ECI report to it about the conduct of certain officials of the States where elections are to be held.

- The ECI apparently acts on such reports.

- It thus orders the transfer on the assumption that the presence of those officials will adversely affect the free and fair election in that State.

- **Procedure** - Transfer of an official is within the exclusive jurisdiction of the government.

- It is actually not clear whether the ECI can transfer a State government official in exercise of the general powers under Article 324 or under the model code.
    o The code does not say what the ECI can do; it contains only guidelines for the candidates, political parties and the governments.
    o Further, Article 324 does not confer unhampered powers on the ECI to do anything in connection with the elections.

- **Supreme court** - In Mohinder Singh Gill's case, the Court had made it abundantly clear that the ECI can draw power from Article 324 only when no law exists which governs a particular matter.

- It means that the ECI is bound to act in accordance with the law in force.

- Transfer of officials, etc is governed by rules made under Article 309 of the Constitution.

- This cannot be bypassed by the ECI under the purported exercise of power conferred by Article 324.

How is ECI's interference in the administrative moves?

- Another issue relates to the ECI's intervention in the administrative decisions of a State government or even the union government.

- According to the model code, Ministers cannot -
    i. announce any financial grants in any form
    ii. make any promise of construction of roads, provision of drinking water facilities, etc
    iii. make any ad hoc appointments in the government, departments or public undertakings

- But in reality, no government is allowed by the ECI to take any action, administrative or otherwise, if the ECI believes that such actions or decisions will affect free and fair elections.

- **Recent case** - ECI's recent decision to stop the Kerala Government from continuing to supply kits containing rice, pulses, cooking oil, etc is a case in point.

- The State government has been distributing such free kits for nearly a year to meet the situation arising out of the pandemic.

- The decision to stop it was reportedly on a complaint from the Leader of the Opposition in the Assembly.

- The question now is whether the ECI could have taken such a decision either under the model code or Article 324.

- The model code does not provide any clue.

- As regards Article 324, the key question is whether distribution of food items to those in need in a pandemic will affect free and fair elections.

- **SC ruling** - The Supreme Court had in S. Subramaniam Balaji vs Govt. of T. Nadu & Ors (2013) held the following.

- The distribution of colour TVs, computers, cycles, goats, cows, etc, done or promised by the government is in the nature of welfare measures.

- It is in accordance with the directive principles of state policy.

- Therefore, it is permissible during an election.

- So, in this line, the distribution of essential food articles which are used to stave off starvation cannot logically be an electoral malpractice.

- Further, Section 123 (2)(b) of the Representation of the People Act, 1951 says that declaration of a public policy or the exercise of a legal right will not be regarded as interfering with the free exercise of the electoral right.

2.4   Judges Pro Tem - SC Decision

Why in news?

The Supreme Court recently decided to invoke a "dormant provision" in the Constitution (Article 224A) to clear the way for appointment of retired judges as ad hoc judges.

What is the rationale?

- The objective is to clear the mounting arrears in various High Courts.

- The numbers both in respect of pendency of cases and vacancies in the High Courts are quite concerning.

- There exists a backlog of over 57 lakh cases, and a vacancy level of 40%.

- Five High Courts account for 54% of these cases.

- Therefore, it is welcome that the Court has chosen to activate Article 224A of the Constitution.

- Article 224A provides for appointment of ad hoc judges in the High Courts, based on their consent.

What is the concern?

- The move reflects the extraordinary delay in filling up judicial vacancies.

- The fault may lie with the Collegium system or the Centre's tardiness.

- But, there is little doubt that the unacceptable delay in the appointment process in recent times has caused huge vacancies in the High Courts.

- On the other hand, interestingly, official data suggests that there need not be a correlation between the number of vacancies and the large backlog.

- The Madras High Court has 5.8 lakh cases against a relatively low level of vacancy at 7%.

- As many as 44% of the posts in the Calcutta High Court are vacant, but the cases in arrears stand at 2.7 lakh.

What are the guidelines provided?

- The provision (Article 224A) has been utilised only sparingly in the past.

- It has been used for the limited purpose of disposing of particular kinds of cases.

- So, the endeavour to appoint ad hoc judges will have to come with some guidelines.

- The Court has made a beginning by directing that the trigger point for such an appointment will be -
    1. when the vacancies go beyond 20% of the sanctioned strength, (or) when more than 10% of the backlog of pending cases are over 5 years old
    2. when cases in a particular category are pending for over 5 years, or when the rate of disposal is slower than the rate of institution of fresh cases
- The Bench has ruled that the current Memorandum of Procedure be also followed for appointing ad hoc judges with a suggested tenure of 2 to 3 years.
    - This is a process initiated by the Chief Justice of a High Court.
- The Court has also clarified that this is a "transitory methodology" and does not constrain the regular appointment process.

What should the government do now?

- Roping in retired HC judges to clear backlog should not be at the cost of regular appointments.
- So, the government would do well to expedite the regular appointment process from its end.
- It should give up its tendency to hold back some recommendations selectively.
- The judiciary too should ensure that only retired judges with experience and expertise are offered the temporary positions, and there is no hint of favouritism.

3. SOCIAL JUSTICE

3.1   Transgenders in Chhattisgarh Police Recruitment

Why in news?

No less than 13 members of the transgender community have been selected recently as constables under the Chhattisgarh police.

What was the 2014 Supreme Court ruling on transgenders?

- The binary notion of gender denies equal protection of law to transgenders.
- This was rejected and the required relief was provided by the Supreme Court ruling in NALSA vs. Union of India (2014).
- It ruled that transgender persons have the right to decide their self-identified gender.
- The transgender community had no legal recognition till then.
- The induction of transgenders into the police force now is a vital message to people that they are as physically and mentally competent as others.
    - This is more significant in the backdrop of the fact that there was no reservation for the transgender community as a separate category.
- Earlier, a few transgenders were inducted into the Tamil Nadu police too.

What measures did the Chhattisgarh government take?

- Soon after the 2014 Supreme Court judgment, the Chhattisgarh government constituted the Third Gender Welfare Board.
- It was set up to take up various welfare measures in favour of trans people.
- Instructions were issued to all departments in this regard.
- They were to include 'third gender' as an option (along with male and female) in official documents that require mentioning the gender or sex of a person.
- District-level committees were constituted to identify members of the transgender community to implement welfare schemes for their benefit.
- Sensitisation workshops were organised at State and district levels by the police department.

- Police officers were apprised about the Central law and the Supreme Court's ruling on transgenders.

- Training capsules were prepared for police training institutes with the help of transgender members of the Welfare Board.

- Further, after the announcement of vacancies, the police helped transgender members in preparing for the written examination.

What are the legal provisions in this regard?

- The Transgender Persons (Protection of Rights) Act was enacted in 2019.

- It paved the way for issuing a certificate of transgender identity.

- This is in spirit with international conventions, particularly, -

    i.   the Universal Declaration of Human Rights, 1948

    ii. the International Covenant on Civil and Political Rights, 1966

    iii. the Yogyakarta Principles, 2006

- The Act recognises that transgender persons have a legal right to self-perceived gender identity in accordance with the principle of the "Psychological Test" instead of the "Biological Test".

- According to law, transgender persons cannot be discriminated against in any matter relating to employment by any establishment.

- Recently, the Kerala High Court allowed a petition moved by a transwoman seeking admission into the National Cadet Corps based on her self-claimed gender identity.

- The court held that the provisions of the NCC Act cannot preclude the operation of the Transgender Persons (Protection of Rights) Act.

- Thus, this new protective Central legislation has given a new lease of life to the whole community.

3.2 Muslim Women's Right to Initiate Divorce

Why in news?

A recent judgement of a division Bench of the Kerala High Court recently clarified the Muslim women's right to initiate divorce.

What are the currently available options for Muslim women to divorce?

- One of the methods is divorce by mutual consent, through the process called Mubaarat.

- Another right of a Muslim woman to divorce is by way of Khula, wherein she decides to terminate the marriage.

- This process may be called wife-initiated Talaq.

- Till now, Ulemas, particularly of the Hanafi School, have interpreted that Khula can be exercised only when the husband accedes to the wife's request.

- So, without the intervention of courts, a Muslim woman can unilaterally divorce her husband, only if, by contract, he has delegated the right to divorce to his wife.

- If he refuses, the woman has no option but to approach courts of law under the provisions set out in the Dissolution of Muslim Marriage Act of 1939.

What is the present case for?

- A Division Bench of the Kerala High Court was dealing with the issue of conditions in "Khula", divorce initiated by the wife.

- The legal issue before the Court was -

    o whether a Muslim wife, on deciding to leave the marriage for reasons that she feels are appropriate, has the right to pronounce unilateral extra-judicial divorce through Khula against her husband.

What are the court's observations?

- Compelling the wife to go to court for Khula undermines the right guaranteed to her in the personal law.

- o The personal law is largely based on two primary sources - the Quran and Hadith (words or actions of the Prophet).

- Interpreting applicable verses of the Quran, the court said that the right of Khula is an unconditional right of the woman.

- The court draws an analogy from the right of the husband to pronounce unilateral Talaq, to say that both are of similar nature.

- The court added that the husband's approval as a condition in Khula is not correct.

- The judgment proceeds to clarify that the right to pronounce Khula is an "absolute right" conferred on the married Muslim woman.

- So, no specific reasons are required to invoke it, once there is a declaration from the wife for repudiation or termination of a marriage.

- The only thing the wife must do before the pronouncement of Khula is to undertake efforts of reconciliation.

- This is the same like how a man is obliged to, before pronouncing husband-initiated Talaq, as declared in the Shamim Ara Judgment of the Supreme Court (2002).

3.3 Bridging the Gender Parity Gap

Why in news?

In the recently released Global Gender Gap index by WEFfor 2021, India falls 28 spots and is placed at 140th position.

What does the report say?

- The Index has four pillars-education attainment, health, political empowerment and economic participation.

- In Asia region, only Pakistan and Afghanistan are behind India.

- India has suffered mainly in political empowerment and economic participation.

- India fell from 18 to 51 in political empowerment of women, despite women having a great opportunity to get better participation in political decision-making.

- As against a global average of 50%, India has just 12 %participation, which clearly is an issue of political will, as local self-government body elections have shown good participation.

- The labour participation of women is 22%, one of the lowest in the world (comparable countries have 50%).

- Educational attainment and economic participation are closely linked and the gender gap issue in India is stark here.

- The big drop in enrolment of girls in primary (93%), secondary (62%) and tertiary (29%) education which sis alarming.

- The pandemic has affected more women than men.

What does the report suggest?

- The global GDP could rise by as much as $28 trillion by 2025 if women play an equal role to men in labour markets.

- If both domestic and MNCs businesses join hands with the government to close the gender gap in economic empowerment, so that India could add at least a trillion annually to its GDP by 2029.

- Companies with more women representation have achieved 22 % higher productivity, 40% better customer retention and 27% more profitability.

- Giving due recognition to the informal and vulnerable sections of the labour market and investing in them can makechanges for the women workforce.

- There is a need for policies in sectors where women participation is significant-healthcare, IT, education, agriculture and also in emerging areas like artificial intelligence, block chain.

- Skill India should develop programmes for girls/women and address the systemic and behavioural issues.

4. HEALTH

4.1 National Policy for Rare Diseases 2021

Why in news?

The Union Health and Family Welfare ministry recently approved the National Policy for Rare Diseases 2021.

What are rare diseases?

- Rare diseases are broadly defined as diseases that infrequently occur in a population; three markers are used:
    1. the total number of people with the disease
    2. its prevalence
    3. the availability/non-availability of treatment options
- WHO defines rare disease as often debilitating lifelong disease or disorder with a prevalence of 1 or less, per 1000 population.
- However, different countries have their own definitions.
- It is defined in a way to suit their specific requirements and in context of their own population, health care system and resources.
- As per an estimate, there are 7,000 known rare diseases with an estimated 300 million patients in the world.
    - Of this, 70 million are in India.
- They include inherited cancers, autoimmune disorders, congenital malformations, Hirschsprung's disease, Gaucher disease, cystic fibrosis, muscular dystrophies and Lysosomal Storage Disorders (LSDs).

What are the key provisions in the policy?

- **Objective** - The policy intends at lowering the cost of treatment of rare diseases (diseases listed under Group 1 in the rare disease policy).
- It also aims at increasing the focus on indigenous research and local production of medicines.
- **Support** - Those who are suffering from rare diseases that require one-time treatment will have the financial support of up to Rs 20 lakh under the umbrella scheme of Rashtriya Arogya Nidhi.
- Financial assistance will not be limited to just the BPL families.
- Around 40% of the population covered under the Pradhan Mantri Jan Arogya Yojana will benefit from the policy.
- **Funding** - The policy will make use of a crowdfunding mechanism to cover the cost of treatment of rare diseases.
- As part of it, corporates and individuals will be encouraged to extend financial support through a robust IT platform.
- **Registry** - A national hospital-based registry of rare diseases will be created.
- This is to ensure that adequate data and comprehensive definitions of such diseases are available for those interested in research and development.
- **Detection** - The policy aims to screen and detect rare diseases at early stages, which will in turn help in their prevention.
- It aims to achieve this through the help of Health and Wellness Centres, District Early Intervention Centres and counselling.

What is the significance?

- Rare diseases are difficult to research upon.
- Also, availability and accessibility to medicines are important in the process of treatment.
- Fund support from government is vital for continual treatment of those with rare diseases.

- The Supreme Court and various high courts had expressed concern about the lack of a national policy for rare diseases.
- The policy thus aims to help the nation overcome these fundamental challenges.

4.2 Emergency Use Authorisation - COVID Vaccines

Why in news?

- 'Emergency Use Authorisation' (EUA) has drawn attention around the world in line with vaccines that can help fight COVID-19.
- In India, too, the drug regulator has given Emergency Use Authorisation to three anti-Covid vaccines, the latest one being Russian Sputnik V.

What is Emergency Use Authorisation?

- A drug regulator would normally require some evidence for approving a drug, vaccine, device or a test.
- In the current pandemic situation, it may not be possible to have all such evidences.
- When there is a declared emergency, the regulator can decide whether it is worth releasing a drug or vaccine that is not fully tested for efficacy and safety.
    - o In India's case, it is the DCGI (Drugs Controller General of India).
- If there is evidence to suggest it may benefit patients, then the regulator is well within its rights to issue an EUA to a medical product.
- It will then be made widely available for use.

Why is it important?

- In a pandemic situation, it is very important to restrain the spread of the pathogen in the quickest possible time.
- Typically, developing vaccines or drugs takes several years.
- A good part of this goes in carrying out trials to establish the vaccine's safety and efficacy.
- So the longer the wait, more people are likely to die.
- So, drug regulators in many countries follow a basic thumb rule.
    - o This is to approve a drug or a vaccine if the known and potential benefits outweigh the known potential risks.

How does it work?

- An EUA does not mean that a vaccine has skipped essential safety trials.
- The regulators need to satisfy themselves that the product meets reasonable thresholds for safety and effectiveness before granting approval.
- In the US, for instance, the Food and Drug Administration grants EUA for Covid vaccines only after -
    - i. a vaccine-maker has undertaken Phase 1 and Phase 2 trials
    - ii. it is able to provide safety and efficacy data for Phase 3 trials as well, using data generated from over 3,000 participants
- In Phase 1 trials, a vaccine is given to a limited sample set of healthy people to assess its safety at higher doses.
- If Phase 1 does not throw up safety concerns, Phase 2 is undertaken on hundreds of people with different health conditions and from different population strata.
- This helps assess both the effectiveness and the side-effects.
- Phase 3 involves much larger sample, representative of the actual population, to assess both safety and efficacy.

How is it carried out in India?

- The process for using the EUA is less clearly spelt out in India.

- But the DGCI has also been issuing EUAs based on clinical trial data.
- In January 2021, the DCGI approved the first two vaccines:
    1. Covishield, produced by Pune-based Serum Institute of India under licensing agreement from AstraZeneca
    2. Covaxin, manufactured by Bharat Biotech
- The emergency approvals given to the three vaccines in India have helped in rolling out the largest vaccination drive in the world.
- But with the second wave proving quicker to spread than the first, capacity constraints are hitting the ramping up of vaccine supplies.
- Thus, granting EUA to new vaccines that have already been approved for emergency use in other countries becomes essential.

4.3   COVID-19's Triage Challenge

Why in news?

Recently second COVID-19 wave has hit India with great ferocity.

How COVID second wave has affected health system?

- There is a shortage of beds, hospitals are flooded with patients and ambulances are screaming through the streets.
- There are curfews and lockdowns and death is in the air -a larger proportion of the elite has been infected.
- In Mumbai, high-rises (elites) have been more affected than slums.
- These elites now got exposed to the dysfunctionality of the healthcare system which the poor have endured for years.
- There is imbalance between demand and supply of healthcare facilities for which WHO recommended new strategy -Triage.

What is triage strategy?

- It is a time-tested, effective strategy to face the challenge of a sudden large load on the healthcare system which has limited availability of resources.
- In this approach, patients are categorised based on severity when there are a large number of people requiring an urgent care.
- The most severe are treated first as any delay will cost lives and the rest are treated later as per their level of severity.
- This idea was first introduced by Napoleon's military surgeons to treat battlefield injuries and it showed immediate impact.
- It is now standard practice in many countries when treating mass casualties and has also been used effectively during COVID-19.

What is the significance of this strategy?

- It has wide acceptance and implementation is based on the powerful but complex principles of justice and solidarity.
- It is where the interests of everyone are put above the interest of an individual where those who need care first are prioritised over those who can wait, irrespective of who they are.
- It works when there is social consensus on a level playing field.
- Serious triage doesn't only prioritise the sickest over the less sick but also discourages futile treatment for the very sick who are unlikely to benefit from the treatment.
- Thus, a 90-year-old who maybe otherwise bedridden could be refused admission or someone with an advanced untreatable cancer who develops COVID-19 may be put lower in priority.
- Thus executing triage in its truest sense is a big collective leap and needs a certain social sanction.

5. GOVERNANCE

5.1   Police Reforms - Prakash Singh Judgement

What is the issue?

- Political interference in police postings continues despite the landmark Prakash Singh judgment nearly a decade-and-a-half ago.
- The latest episode of allegations of lobbying by several IPS officers in Maharashtra has brought the issue to the fore.

What is the Prakash Singh v. Union of India case?

- Prakash Singh served as DGP of UP Police and Assam Police, besides other postings.
- He filed a PIL in the Supreme Court post retirement, in 1996, seeking police reforms.
- In a landmark judgment, the Supreme Court in September 2006 had directed all states and UTs to bring in police reforms.
- The ruling issued a series of measures that were to be undertaken by the governments.
- These were in line with ensuring that the police could do their work without worrying about any political interference.

What were the measures suggested in the Prakash Singh judgment?

- The main directive in the verdict was fixing the tenure and selection of the DGP (Director General of Police).
- This is to avoid situations where officers about to retire in a few months are given the post.
- In order to ensure no political interference, a minimum tenure was sought for the Inspector General of Police.
- This is to ensure that they are not transferred mid-term by politicians.
- The SC further directed postings of officers being done by Police Establishment Boards (PEB).
- The idea is to insulate powers of postings and transfers from political leaders.
    - The PEBs comprise police officers and senior bureaucrats.
- Further, there was a recommendation of setting up State Police Complaints Authority (SPCA).
- This should work as a platform where common people aggrieved by police action could approach.
- Apart from this, the SC directed separation of investigation and law and order functions to better improve policing.
- It also suggested setting up of State Security Commissions (SSC) that would have members from civil society and forming a National Security Commission.

How is the implementation?

- Up till 2020, not even one state was fully compliant with the apex court directives.
- While 18 states passed or amended their Police Acts in this time, not one fully matches legislative models.
- Five contempt petitions were issued in the past decades to states found to be non-compliant.
- Bigger states like Maharashtra, Tamil Nadu and UP have been the worst when it comes to bringing about systemic changes in line with the judgement.
- It is only the North-Eastern states that have followed the suggested changes in spirit.

What is the case with Maharashtra?

- The Maharashtra government under former CM Devendra Fadnavis passed the Maharashtra Police (Amendment and Continuance) Act, 2014.
- This was meant to incorporate the changes suggested in the Prakash Singh judgment.
- However, recently too, there were allegations of rampant political interference in transfers.

- The state Acts were deliberately formulated in such a way that "it just gave legal garb to the status quo that existed before".

- In the updated Maharashtra Police Act of 2014 too, a section 22(N)(2) had been added.

- This gave the CM special powers to transfer officers at any point in case of 'administrative exigencies'.

- The SC directive was that an officer should not be transferred before the given tenure.

- But CMs have used this section for mid-term transfer thereby maintaining control on transfers.

How is the government interfering despite PEBs?

- The officers in the Police Establishment Boards (PEB) are 'unofficially' informed by the government about which officer would be preferred for which post.

- Either that or in meetings to decide postings of senior IPS officers, when even the Additional Chief Secretary (home) is present, the officers go with what the ACS Home says.

- Among the five officers in the PEB, even if one or two do not agree, the majority usually sides with the opinions of the government of the day.

- Thus, in spite of PEBs in place, the system has continued as before.

What about the State Police Complaints Authority (SPCA)?

- In January 2017, the SPCA was set up by the Maharashtra government.

- The complaints body did receive several complaints at their office in Mumbai.

- But, the SPCA was struggling to set up offices in rural areas.

- Several activists had alleged that the SPCA was toothless.

- While the SPCA could recommend action against any officer found guilty, the decision on taking actions eventually rested with the government.

- Over the past years, the SPCA has also struggled due to lack of staff members.

5.2   Wrong Patent Regime

What is the issue?

Despite the ongoing COVID-19 crises,intellectual property rulesis been a barrier for right to access healthcare.

What is patent?

- A patent is a conferral by the state of an exclusive right to make, use and sell an inventive product or process.

- Patent laws are usually justified on three distinct grounds:

    1. People have natural and moral right to claim control over their inventions;

    2. Exclusive licenses promote invention and benefit society;

    3. Individuals must be allowed to benefit from the fruits of their labour and merit;

How does patent rules function in India?

- There is a constant tension in offering exclusive rights over medicines and state's obligation of ensuring in equal access to basic healthcare.

- The colonial-era lawwhich allowed for pharmaceutical patents was changed when committee chaired by **N. RajagopalaAyyangar** in 1959 objected it on ethical grounds.

- It found that foreign corporations used patents to suppress competition from Indian entities and thus medicines were priced at high rates.

- **Patents Act, 1970** was enacted subsequently that removed the monopolies over pharmaceutical drugs, with protections offered only over claims to processes.

- This change in rule allowed generic manufacturers in India to grow and as a result life-saving drugs was available at affordable prices.

- This was affected when negotiations begun to create WTO which would give a binding set of rules governing intellectual property.

- It was also said thatcountries which fail to subscribe to the common laws of WTO will be barred in global trading circuit.

- But with the advent of the **TRIPS agreement** in 1995 this concern was addressed and it was only after this Indian companies began to manufacture generic versions of medicines at low prices.

What is the problem now?

- Last year, India and South Africa requested WTOto temporarily suspendthe rules under the 1995 TRIPS agreement.

- A waiver was sought to the extent that the protections offered by TRIPS impinged on the containment and treatment of COVID-19.

- If waiver was allowed, countries will be in a position to facilitate a free exchange of know-how and technology surrounding the production of vaccines.

- But a small group of states — the U.S., the European Union, the U.K. and Canada among them —blocked the move.

Why these countries objected?

- These nations put forward two arguments for their objections which have been refuted time and again.

- One, that unless corporations are rewarded for their inventions, they would be unable to recoup amounts invested by them in research and development.

- Two, that without the right to monopolise production there will be no incentive to innovate.

- Recently, it has been reported that in U.S.Moderna vaccine was produced from the basic research conducted by the federal government agency and other publicly funded universities.

- Similarly, public money accounted for more than 97% of the funding towards the development of the Oxford/AstraZeneca vaccine.

- Therefore, the claim that a removal of patents would somehow invade on a company's ability to recoup costs is simply untrue.

- The second objection — the idea that patents are the only means available to promote innovation — has become a dogma.

What are the alternatives proposed?

- Under the current system, poor are unfortunate enough to have the disease and are forced to pay the price.

- Therefore a system that replaces patents with prizes will be more efficient and more equitable.

- Sovarious economists are proposing a prize fund for medical research in place of patents.

- This ensures incentives for research will flow from public funds while the biases associated with monopolies are removed.

- The pandemic has demonstrated how immoral the existing world order is which should not be allowed to persist.

- If nation states are to act as a force of good, they must attend to the demands of global justice.

5.3   Denial of Rations

Why in news?

Recently Supreme Court asked the centre to respond to a PIL alleging that ration cards were cancelled due to insistence on Aadhaar linkage.

What are the findings of the survey related to this?

- In 2019 National Election Study (NES), people were asked whether they had been denied food grains due to non-possession of Aadhaar or failure of biometric authentication.

- Based on the responses from the ration-card (RC) holding households, it turned out that one in four households were denied food grains due to such issues.

- Moreover the frequency of such denial was on rise that has raised the concern over food security.

- Ever since Aadhaar-based biometric authentication was introduced in PDS, people complain about fingerprints not getting confirmed, no backup of iris poor Internet connection.

- This has forced people to spend on another trip to the shop.

What are the other findings in the survey?

- This seeding and authentication problems not only occur in remote areas but also in urban areas.

- In rural areas, 28% of respondents belonging to RC-holding households were refused ration due to Aadhaar-related issues and in urban areas this was around 27%.

- In both rural and urban areas, the poorest were worst affected – 39% of households whose monthly income below Rs 2,000 -were at some point denied PDS ration due to Aadhaar problems.

- There was a striking difference noticed based on the responses of the Hindi-speaking heartland states vis-à-vis the other states.

- In the Hindi belt-'Bimaru' states- as many as 40% of RC-holding households reported a denial of ration due to Aadhaar issues as compared to 20% households in the rest of the country.

- The problem was less due to non-possession of Aadhaar and more due to biometric authentication and server issues.

- In states like Bihar, Jharkhand, MP, Rajasthan and Chhattisgarh the situation is as grave as the NES data suggests.

- The proportion of RC-holding households who were denied ration due to Aadhaar-related factors was: Rajasthan-36%; Chhattisgarh, -39%; MP& Jharkhand- 40%; Bihar, high as 56%.

5.4   Spectrum Dues and Insolvency

Why in news?

Recently the verdict of the National Company Law Appellate Tribunal has created a confusion.

What was the ruling of National Company Law Appellate Tribunal?

- It has said that the final ownership of spectrum lies with the government -Department of Telecom (DOT) and it will be treated as an operational creditor.

- It has also said that the spectrum cannot be treated as a security interest by the lenders.

- The telecom operators have to first clear pending dues to DoT before filing for bankruptcy.

- This order of NCLAT treats DoT ahead of all the financial creditors when it comes to telecom assets.

- This is contradictory as company is unlikely to be insolvent even if it clears DoT's dues.

- This also sends confused signals to banks and can derail the IBC process in the sector.

What will be the effect of this order?

- The banks enter into a tripartite agreement with the telecom operator and the DoT at the time of lending money to operators which takes into account quantum of spectrum held by them.

- Though the operators don't own spectrum, they have rights over it for the period of 20 years during which they can use it themselves or sell it to another entity.

- Even the tribunal itself acknowledged that spectrum is an intangible asset and can be subjected to insolvency proceedings.

- But by making IBC proceedings conditional to payment of dues to DoT ahead of all other creditors, NCLAT's ruling could scramble the entire debt resolution process.

- This is because telecom operators will have to first pay dues to the DoT before filing for debt resolution under IBC.

- This would lead to zero recovery of dues owed by the operators to the banks and DoT will get back the spectrum but not the licence fee dues.

6. INDIA & ITS NEIGHBORHOOD

6.1 Refugee Policy

What is the issue?

- The Ministry of External Affairs has underlined the government's changing position on the Myanmar crisis.
- In this context, here is a look at the situation and an overview on India's refugee policy.

What are the recent remarks?

- India has moved to a more pro-active stand as concerns grow worldwide about growing internal strife and instability in Myanmar.
- After a closed-door UNSC meeting on Myanmar, Ambassador TS Tirumurti, India's Permanent Representative to the UNGA, responded.
- He condemned the violence in Myanmar and condoled the loss of lives.
- He also called for the release of detained leaders and urged maximum restraint.
- The messages underlined India's commitment to a democratic transition.
- There was a line about supporting peace efforts by the Association of South East Asian Nations (ASEAN, of which Myanmar is a member).
- However, ASEAN has been tentative, even timid, in the face of China's support to the junta.

What is the significance with India's stance?

- The recent statement is the outright so far by India on Myanmar and a response to criticism of its earlier stand within and outside the country.
- This marks a welcome departure from the stance befriending the military (which has not always been friendly to India's interests) and engaging with the civilian government, which held office only for 5 years.

What is the current situation in Myanmar?

- There is increasing disorder in Myanmar which appears to be escalating as the civil disobedience movement (CDM) flares.
- The CDM has been innovative, energetic and driven by young people in the majority Burman and Buddhist-dominated heartland.
- Disobedience could lead to extensive civil disorder and worse.
- Already, telecommunications are cut, and curfews are in place.
- Nevertheless, daily shows of defiance occur, the banks are not functional, markets are shut.
- The only courts which appear to be open are those used to present detainees and those charged with violations of regime controls while the cases against Suu Kyi and her colleagues pile up.
- The battle-scarred armies of the ethnic groups had fought the Myanmar army to a standstill over nearly 70 years.
- They had recently signed a ceasefire with Suu Kyi.
- But these groups are now preparing for war again and are allying with each other.
- A provisional government of leaders who escaped detention has been announced.

What are India's priorities now?

- India's concerns at this stage are mainly two.

- **People of Myanmar** - The people of Myanmar have tasted freedom of expression, assembly and association for the first time in decades under Suu Kyi.

- They are rightfully determined to hold on to this freedom.

- **North-East** - Another concern is the future stability and security of India's North-east.

- The policies that have been espoused at the highest levels of government should also be preserved.

- Notably, the Act East and Neighbourhood First policies are anchored in the eight states of the North-east.

- India should also keep in mind the various insurgent groups from the North-east.

- They have a history of relations with ethnic armed groups in Myanmar.

- The insurgents have taken shelter there and established bases and some still live there.

What is the impact on Centre-State relations?

- The Four states of Arunachal Pradesh, Nagaland, Manipur and Mizoram have long borders with Myanmar.

- The last two states have taken some 1,500 persons, including a number of junior police officials, fleeing from the crackdown in the bordering Chin State.

- This has raised issues of Centre-state relations.

- The New Delhi advised the states on the border not to allow Myanmar nationals fleeing the crackdown to enter Indian territory.

- But Mizoram CM Zoramthanga has rejected this approach, saying that his government will accept people fleeing, on humanitarian grounds.

- He wrote to the prime minister saying that as the world's largest democracy India could not stand aside.

- The Manipur government, too, has withdrawn its circular which had asked district officials along the border to "politely" turn back refugees.

Why is a refugee policy essential?

- The Chins in Myanmar and the Mizos and Kukis (and sub-groups) in Mizoram and Manipur are kin.

- A historical affinity connects them by ethnicity, religion, and language.

- In the aftermath of the 1988 army crackdown on the pro-democracy movement that killed thousands, many Chins and other refugees fled to Manipur and Mizoram.

- Local leaders and non-government groups, with the tacit support of central and state agencies, allowed them to live, work and even settle.

- The present situation thus must be utilised by India to develop a long-term approach to the issue of refugees fleeing political persecution in their homelands.

- India does not have a National Refugee Law nor is it a signatory to the UN Convention governing refugees.

- India has allowed Tibetans, Tamil refugees from Sri Lanka, Chakmas of Bangladesh, the Lothsampas of Nepali origin from Bhutan, Afghans, Somalis and many others into this land.

- But these remain ad hoc approaches.

- This has been sought to be addressed for six "minority" communities of Pakistan, Bangladesh and Afghanistan in a long-term manner by the controversial Citizenship Amendment Act.

- However, the CAA does not cover many of the cases listed above.

6.2   Pakistan's Flip-Flop on Trade with India

What is the issue?

- Pakistan's double U-turn on resuming trade with India highlights the internal differences within Ministries, between business and political communities.

- All these hint at the reality that the shadow of politics looms over trade and economy.

What is the recent trade decision that was reversed?

- Pakistan's Economic Coordination Committee (ECC) recently decided to import cotton, yarn, and 500,000 metric tons of sugar from India.

- Pakistan's new Finance Minister Hammad Azhar announced this decision.

- The media dubbed it as a political breakthrough.

- But the ECC's decision was based on Pakistan's immediate economic needs and not on bilateral trade.

- It was only about importing three items - cotton, yarn and sugar.

- It was not designed as a political confidence-building measure to normalise relations with India.

- Despite this, a day later, Pakistan's cabinet overruled the decision.

- It was also made clear that as long as India did not review the unilateral steps it took on August 5, 2019, normalising relations with India would not be possible.

- The Finance Minister accepted the cabinet's decision as the working of "economic and political interface in a democracy."

- It was left with the Prime Minister and the cabinet to "endorse, reject or modify" the ECC's proposals.

Why was the ECC's decision inevitable?

- For the textile and sugar industries in Pakistan, importing from India is imperative, practical and is the most economic.

- **Textile industry** - Yarn, cotton cloth, knitwear, bedwear and readymade garments form the core of Pakistan's textile basket in the export sector.

- In 2020, there was a steep decline in the textile sector due to disruptions in supply and domestic production, as well as a sharp decline in cotton production.

- Notably, Pakistan is the fifth-largest exporter of cotton globally.

- The cotton-related products (raw and value-added) earn close to half of the country's foreign exchange.

- The projected decline means Pakistan's cotton export would reduce, creating a domino effect on what goes into Pakistan's garment industry.

- So, for the textile industry, importing cotton yarn from India is an immediate need; otherwise, it would impact their export potential.

- Pakistan's textile industry has thus not taken the cabinet's decision kindly.

- **Sugar Industry** -For the sugar industry, the problem stems from different issues - the availability for local consumption and the steep price increase.

- The sugar industry has prioritised exports over local distribution.

- But there was increased government subsidy.

- Also, a few related administrative decisions resulted in the sugar industry attempting to make a considerable profit by exporting it.

- However, by early 2019, the sugar prices started increasing, and in 2020, there was a crisis due to shortage and cost.

- The subsidies, cheap bank loans, a few administrative decisions, manipulation and greed, especially by the sugar mill owners, meant high cost paid by the consumers.

- As a result, importing sugar from India would be cheaper for the consumer market in Pakistan.

- Clearly, the crises in cotton and sugar industries played a role in the ECC's decision to import cotton, yarn and sugar from India.

- It would not only be cheaper but also help Pakistan's exports. This is also imperative for Pakistan to earn foreign exchange.

What does the cabinet's decision imply?

- **Politics** - For the cabinet, the interests of its own business community and its export potential have become secondary.

- This implies the supremacy of politics over trade and economy, even if the latter is beneficial to the importing country.

- However, Pakistan need not be singled out; this is a curse in South Asia, where politics play supreme over trade and economy.

- The meagre percentage of intra-South Asian Association for Regional Cooperation (SAARC) trade would underline the above.

- Trade is unlikely to triumph over politics in South Asia; especially in India-Pakistan relations.

- **Kashmir link** - Another aspect is the emphasis on Jammu and Kashmir by Pakistan to make any meaningful start in bilateral relations.

- The latest statement by Pakistan's cabinet is that unless India rescinds the decision of August 5, 2019 in J&K, there would be no forward movement.

- This position hints at Pakistan's precondition (revoking the August 2019 decision) to engage with India.

- Pakistan has been saying that the onus is on India to normalise the process.

- It is perhaps New Delhi's turn now to tell Islamabad that it was willing, but without any preconditions, and start with trade.

6.3   Ethnic Armed Organizations against the Junta in Myanmar

Why in news?

- Protests against the military coup in Myanmar have assumed new dimensions.

- Some "ethnic armed organisations" (EAOs) are mounting their own resistance against the junta (a military or political group that rules a country after taking power by force.)

What are the recent tensions?

- The generals are hitting back the EAOs with airstrikes, a sign that they are ready to use the most brutal means to crush opposition.

- The Myanmar military bombed villages on its border with Thailand.

- It carried this out in retaliation for the loss of one of its outposts in the southeastern Karen (now renamed Kayin) state that the Karen National Union (KNU) had seized earlier.

- The air strikes sent hundreds of Karen, one of Myanmar's many ethnic minority groups, scattering across the border.

- Some 24,000 Karen people have been displaced in fighting in the past one month.

- Another area of tension is in the north, in Kachin state bordering China and forming a trijunction with India.

- Aerial bombardment has been going on here for days since the Kachin Independence Army (KIA) attacked two police outposts and a military base.

- Some 5,000 people are displaced with this.

- In Myanmar's western Chin state, which borders Mizoram, 15 soldiers were killed in two separate incidents.

- This was claimed by a new ethnic armed militia called the Chinland Defence Force (CDF).

- **Impact** - The resistance by the EAOs seems to have taken the Myanmar army by surprise.

- In all, 21 EAOs, and several more militias, are active in the border states of Myanmar.

- Many of them have been waging armed resistance against the state for decades now.

What is the unfulfilled Federation dream of Myanmar?

- One of Aung San Suu Kyi's priorities when her party was governing Myanmar from 2015 to 2020, was to take forward the efforts of her father, Gen Aung San.

- Gen Aung San led the movement for independence from the British.

- He aimed for building a federal Myanmar of the Bamar majority and ethnic minorities, who form one third of the country's 54 million population.

- But after a ceasefire agreement with 12 EAOs in 2015, the NLD (National League for Democracy) government was unable to make much further progress.

- At least four more meetings held to bring the other groups on board were not successful.

- By the end of her first term, Suu Kyi was convinced that unless the army could be tamed through reforms to the country's constitution, Myanmar would never become the federation that her father had envisioned.

Who are the Bamars and the ethnic minorities?

- The army draws its power from the divisions between the majority Bamar and the minority ethnic groups, and the hostilities between the ethnic groups themselves.

- However, since the February 1 coup, some EAOs, including some that had signed the ceasefire agreement, have expressed solidarity with the pro-democracy protesters.

- The military had offered a ceasefire to all groups, but this was rejected by many of the influential groups.

- Reportedly, in a throwback to protests of the 1980s and 1990s, many Bamar youth are now in Karen state for arms training.

- This belies the notions of divisions between the Bamars and the ethnic groups.

- The troubles in the three border states have distracted the army's attention for the moment from the pro-democracy protests in the central regions, including in Yangon.

Will it be a challenge for the army?

- More EAOs are likely to rise up against the army, joining hands or even fighting separate battles.

- If this happens, Myanmar's armed forces may find themselves engaged in multiple mini wars in the border regions.

- And all this would happen at a time when it would like to focus on entrenching itself in the same way as it had done in the 1990s.

- Reportedly, the combined strength of the EAOs and other militias is about 1,00,000, while the Myanmar army is 350,000 strong.

- The use of air power by the military could be a warning to the EAOs to "back off".

- It is perhaps due to the outbreak of fighting in these places that the junta has said it will "consider" a plan put forth by ASEAN.

What is the ASEAN's plan for peace?

- This would work for a resolution in Myanmar, but only "when stability is restored".

- The five-point ASEAN consensus plan was put to the head of the Myanmar army, Gen Min Aung Hlaing, in Jakarta.

- The five points are:

    1. immediate cessation of violence by the Myanmar army

    2. peaceful resolution through dialogue between all parties

    3. mediation by an ASEAN special envoy

    4. a visit by the special envoy

    5. humanitarian assistance from ASEAN

- The protesters have dismissed the plan, since it does not include the release of Suu Kyi and others arrested by the junta.

- The new generation of protesters have also demanded that the 2008 constitution, drafted and voted in by the military, should be scrapped.

6.4   US Recognition of Armenian Genocide

Why in news?

U.S. President Joe Biden has fulfilled a long-pending American promise by recognising the Armenian Genocide.

What happened during the Armenian Genocide?

- The Ottoman Empire suffered a humiliating defeat in the Caucasus in 1915 at the hands of the Russians.
- The Turks blamed the Armenians living on the fringes of the crumbling empire for the setback.
- The Turks accused the Armenians of treachery.
- The Ottoman government unleashed militias on Armenian villages.
- Armenian soldiers, public intellectuals and writers were executed.
- Hundreds of thousands of Armenians, including children, were forcibly moved from their houses in eastern Anatolia (modern-day Turkey) to the Syrian desert.
- Many died during this exodus and many others, after reaching the concentration camps in the deserts.
- Between 1915 to 1922, in the First World War, thousands of Armenians perished due to killings, starvation and disease.
- The Armenian Genocide thus refers to the systematic killing and deportation of hundreds of thousands of Armenians by the Ottoman Turks.

What are the conflicting claims?

- It is difficult to estimate the total number of Armenians who died during the genocide.
- But the Armenian diaspora says that approximately 1.5 million died.
- Turkey rejects that number and claims that some 300,000 Armenians may have perished.
- The International Association of Genocide Scholars estimates that more than 1 million Armenians may have died.
- Turkey has acknowledged that atrocities were committed against Armenians.
- But it is opposed to calling it a genocide, which it considers as an attempt to insult the Turks.

Why is the US acknowledgement significant?

- At present, 30 countries officially recognise the Armenian Genocide.
- Most countries including India have not formally recognised the Armenian Genocide.
- They have primarily adopted this stance in the interests of their wider foreign policy decisions and geo-political interests in the region.
- Former U.S. President Obama too failed to deliver on his campaign pledge to recognise the genocide.
  - This had been rooted in concerns about straining the US's relationship with Turkey.
  - U.S. needed Turkey's cooperation on its military and diplomatic interests in the Middle East, specifically in Afghanistan, Iran and Syria.
- Former President Donald Trump, like his predecessors, stopped short of a formal recognition of the genocide, mainly because of Turkish opposition.
- The acknowledgement by the US government now would have little legal impact on Turkey.
- But it would perhaps give other countries the impetus to also acknowledge the genocide.
- The US acknowledgement or wider acknowledgement of it in the international community may be unwelcome for Turkey.

- However, failing to remember or acknowledge the fact of a genocide only paves the way for future mass atrocities.
- The facts must be as clear and as powerful for future generations as for those whose memories are seared by tragedy.

What is the likely impact on US-Turkey ties?

- Mr. Biden's move comes at a time when the relationship between the U.S. and Turkey has been in steady decline.
- The ties had been strained over a range of issues.
- In 2016, Ankara accused the U.S.-based Turkish Islamic preacher Fethullah Gülen of being the mastermind of a failed coup.
- It asked the U.S. government to extradite him, a demand Washington paid no attention to.
- Also, Turkey went with the decision to buy the S-400 missile defence system from Russia, despite strong opposition from the U.S.
- This prompted American leaders to oust Turkey from the F-35 fighter jet training programme and impose sanctions on their ally.
- Besides these, there are foreign policy differences between the two countries with regard to Syrian crisis.
- Now, Turkey's Foreign Minister has said that such moves (as the genocide recognition) would only set back the already strained relationship.
  - "Statements that have no legal binding will have no benefit, but they will harm ties."
- Notably, both are North Atlantic Treaty Organization (NATO) allies.

What is Turkey's response?

- Ankara has challenged the "scholarly and legal" basis of Mr. Biden's announcement and has warned of consequences.
- But there may be little that Turkey can really do in retaliation without jeopardizing its own interests.
- Turkey's economy has also been suffering.
- A combination of these factors could result in a muted response from Turkey.

6.5 India does have a refugee problem

Why in news?

Recently large numbers of Myanmarese citizens are moving towards Indian border which has revived the debate about refugee protection.

What is the problem with refugees?

- In India, the issue of refugees tends to get subsumed under illegal immigration.
- Illegal immigration is a threat to the socio-political fabric of the country and it has potential security implications.
- India has argued over time that illegal immigration from the neighbouring countries to India must come to an end.
- Moreover the policies and remedies to deal with these issues suffer from a lack of clarity and policy utility.

What are the ambiguities in dealing with refugees?

- In India, illegal immigrants and refugees are viewed as one and the same and are covered under the Foreigners Act, 1946.
- The act defines foreigners as a person who is not a citizen of India.
- Though there are fundamental differences between illegal immigrants and refugees, India is legally ill-equipped to deal with them separately due to a lack of legal provisions.

- Moreover India is not a party to the **1951 Refugee Convention** and its **1967 Protocol** which pertains to refugee protection.

- Its refugee policy is guided primarily by ad hocism which often has its own political utility.

- These adhoc measures enable the government to pick and choose what kind of refugees it wants to admit and what kind of refugees it wants to avoid.

- This opens the door for geopolitical considerations while deciding to admit refugees or not.

- If India admits Myanmar migrants, China would use the opportunity to hurt India's interests in Myanmar which prompted India not to admit the refugees.

- There are some flaws in the International convention too.

Why India should not join the Refugee convention?

- India has been one of the largest recipients of refugees in the world in spite of not being a party to the 1951 Refugee Convention and its 1967 Protocol.

- Given its track record of refugee protection and vulnerable geopolitical and socio-economic situation, India need not accede to the convention and the protocol in the way it currently stands.

- The definition of refugees in the 1951 convention pertains only to the violation of civil and political rights, but not the economic rights of individuals.

- If economic rights are included, it would cause major burden on the developed world and in South Asia, it could be a problematic for India.

- Secondly, India should not accede to the convention at a time when the Northern countries are violating it in both letter and spirit.

- India should accede only when western states commit to roll back their no entry regime which they have established for decades.

- This no entry regime has a range of legal and administrative measures-visa restrictions, carrier sanctions, interdictions, third safe-country rule.

- It also constitutes restrictive interpretations of the definition of refugee, withdrawal of social welfare benefits to asylum seekers, and widespread practices of detention.

What can be done now?

- Since the citizenship amendment act is deeply discriminatory nature and it cannot address the concerns of refugees who are fleeing their home country.

- In the absence of proper legal measures, refugee documentation, and work permit, they can end up in becoming illegal immigrants.

- Hence a domestic refugee law needs to be created which will offer temporary shelter and work permit for refugees.

- It must make a distinction between temporary migrant workers, illegal immigrants and refugees and deal them differently through proper legal and institutional mechanisms.

- Therefore there is urgent need to address the issue of refugee protection in India and put in proper institutional measures.

6.6   Saving the Iran Deal

Why in news?

Recently efforts are taken to revive Iran nuclear deal which has raised hopes after the unilateral termination by the U.S.

What are the details about the talks?

- The talks are held in Vienna with the remaining members of the Iran nuclear deal — China, Russia, U.K., France, Germany and Iran.

- The European and Iranian diplomats said efforts to revive the deal are on the right track.

- Though the American delegation participated in Vienna, they did not held direct talks with Iran.
- The aim of the talks is to produce a road map for the revival of the JCPOA by addressing two critical issues — Iran's nuclear enhanced programme and American sanctions.

What was the demand of U.S on Iran?

- The U.S. wants Iran to end its uranium enrichment and centrifuge development programmes and return to the 2015 agreement.
- It has displayed flexibility in its approach towards Iran and has appointed a special envoy.
- It has ended the U.S.'s support for Saudi Arabia's war against the Houthis- Iran-backed militants- in Yemen and promised to lift sanctions if Iran returns to JCPOA terms.
- It also made an offer to Iran to release $1 billion of Iranian money frozen in South Korea as part of the sanctions in exchange for ending its 20% uranium enrichment.
- But Iran has demanded the U.S. lift all sanctions imposed by erstwhile President which is still in enforcement.

What are the challenges in taking forward the talks?

- Iran has rejected the offer now seeking more concrete measures from the U.S.
- Both the countries are facing time constraints in resuming the deal as Iran holds its presidential polls in June.
- If U.S.'s wants to revive Iran's nuclear programme, it can do so by reviving the agreement before the Iran's presidential election.
- There are external dangers as well:
    1. Iran-backed Shia militias in Iraq continue to target U.S. forces and bases in Iraq.
    2. The Israel-Iran shadow conflict is now being fought inside Syria and on the seas.
- Earlier, an Iranian ship was attacked in the Red Sea and if security tensions rise in the region, it could derail the diplomatic efforts.
- Both U.S. and Iran should exercise restraint, stay focused on talks and rebuild the lost trust.
- They must take measures to get the deal back on track that would resolve the nuclear crisis in return for dismantling the sanctions regime.

G.S PAPER III

7. ECONOMY

7.1 Government Securities Acquisition programme

Why in news?

In its recent monetary policy briefing, the RBI announced of Rs one lakh crore Government Securities Acquisition programme (G-SAP 1.0.)

What is G-SAP?

- The RBI periodically purchases Government bonds from the market through Open Market Operations (OMOs).
- The G-SAP is in a way an OMO.
- But there is an upfront commitment by the RBI to the markets that it will purchase bonds worth a specific amount.
- The idea is to give a comfort to the bond markets.
- In other words, G-SAP is an OMO with a 'distinct character.'

What is the rationale?

- The governmentwill mainly be benefited from the G-SAP 1.0. operations.
- The government, notably, has a massive borrowing programme scheduled for FY22.
- It has planned a Rs 12.05 lakh crore borrowing plan for fiscal year 2022.
- So, the RBI's endeavour is to keep the yield down, to lower the borrowing cost of the Government.
- The plan is to enable a stable and orderly evolution of the yield curve amidst comfortable liquidity conditions.
- The endeavour will be to ensure congenial financial conditions for the economic recovery to gain traction.
- For Q1 of 2021-22, therefore, it has been decided to announce a G-SAP of Rs One lakh crore.
- Also, the positive externalities of G-SAP 1.0 operations need to be seen in the context of those segments of the financial markets that rely on the G-sec yield curve as a pricing benchmark.

What is the first phase of operation?

- The RBI has officially notified that it would conduct the first phase of G-SAP 1.0 operations on April 15, 2021.
- It will begin with the purchase of five dated securities for an amount aggregating to Rs25,000 crore.
- The first phase of G-SAP purchase will happen using the multiple price method under which the bidders pay at the respective rate they had bid.
- The RBI has notified four securities for the G-Sec purchase in different maturities.
- In addition to the G-SAP plan, the RBI will also continue to deploy regular operations.
- This would be under the LAF, longer-term repo/reverse repo auctions, forex operations and open market operations including special OMOs.
- This is to ensure that the liquidity conditions evolve in consonance with the stance of monetary policy.

What are the concerns?

- **Interest rates** - For the Government, the RBI keeping the yield downis a good news because the overall borrowing costs go down.
- But,the RBI artificially keeping the interest rates lower in the financial system has caused concerns.
- In healthy economic system, the interest rates pricing should be driven by demand-supply.
- It shouldn't be artificially suppressed by the central bank; this might lead to distortions and have other consequences.
- **Savers** - Cheaper rates will be good news to big, top rated companies who can issue bonds to raise money and to the government.
- But low interest rates coupled with high inflation is a systemic worry for savers.
- Already, savers are getting negative returns on their deposits if one takes into account the inflation adjusted rates or real rates.
- **Rupee** - Government resorting to massive bond purchase to keep the rates low is not good news for the local currency.
- The Indian Rupee, notably, came under pressure after the RBI announced the massive Rs 1 lakh crore bond purchase programme.
- The fear of investors pulling capital out of India in a low interest environment is hurting the local currency.

7.2   US Treasury's Call for a Global Minimum Tax

Why in news?

U.S. Treasury Secretary Janet Yellen recently urged the adoption of a minimum global corporate income tax.

How would a global minimum tax work?

- The global minimum tax rate would apply to companies' overseas profits.

- So, if countries agree on a global minimum, governments could still set whatever local corporate tax rate they want.

- But, if companies pay lower rates in a particular country, their home governments could "top-up" their taxes to the agreed minimum rate.

- This would eliminate the advantage of shifting profits to a tax haven.

- The Biden administration in the U.S. has said that it wanted to deny exemptions for taxes paid, to countries that did not agree to a minimum rate.

What is the rationale?

- Major economies are aiming to discourage multinational companies from shifting profits and tax revenues to low-tax countries regardless of where their sales are made.

- Increasingly, income from intangible sources such as drug patents, software and royalties on intellectual property has migrated to these jurisdictions.

- This, in turn, is allowing these companies to avoid paying higher taxes in their traditional home countries.

- With a broadly agreed global minimum tax, the Biden administration hopes to reduce such tax base erosion.

- This could be done without putting American firms at a financial disadvantage, allowing them to compete on innovation, infrastructure and other attributes.

- The Trump administration attempted at capturing revenues lost to tax havens with a U.S. corporate offshore minimum tax in 2017.
    - The "Global Intangible Low-Taxed Income," or GILTI, tax rate was only 10.5% - half the domestic corporate tax rate.

How about the international tax talks?

- The Paris-based Organization for Economic Cooperation and Development (OECD) has been coordinating tax negotiations among 140 countries for years on two major efforts.
    - These are setting rules for taxing cross-border digital services and curbing tax base erosion, with a global corporate minimum tax part of the latter.

- The OECD and G20 countries aim to reach consensus on both fronts by mid-2021.

- If deals on both efforts are enacted, companies will end up paying an extra corporate tax.

- The minimum tax is expected to make up the bulk of this $50 billion-$80 billion extra corporate tax.

- The OECD recently said that governments broadly agreed already on the basic design of the minimum tax.

- However, the rate remains to be agreed, which is a challenging task.

- Other items still to be negotiated include -
    i. whether industries like investment funds and real estate investment trusts should be covered
    ii. when to apply the new rate and ensuring it is compatible with the 2017 U.S. tax reforms aimed at deterring tax-base erosion

What is the challenge with finalising the minimum rate?

- The Biden administration wants to raise the U.S. corporate tax rate to 28%.

- So, it has proposed a global minimum of 21% which is double the rate on the current GILTI tax.

- It also wants the minimum to apply to U.S. companies no matter where the taxable income is earned.

- That proposal is far above the 12.5% minimum tax that had previously been discussed in OECD talks.
    - This level happens to match Ireland's corporate tax rate.

- The Irish economy has boomed in recent years from the influx of billions of dollars in investment from foreign multinationals.

- So, Ireland which has resisted European Union attempts to harmonize its tax rules for more than a decade, is unlikely to accept a higher minimum rate without a fight.

- However, the battle for Ireland and other low-tax countries is less likely to be about trying to ruin the overall talks.
- Rather, it is more about building support for a minimum rate as close as possible to its 12.5%.

7.3   M Narasimham's Contribution

What is the issue?

With the demise of M Narasimham, former RBI Governor, it is imperative to reflect on his contribution to reforms in the financial sector.

Who is M Narasimham?

- Maidavolu Narasimham (1927-2021) was the thirteenth governor of the RBI [from May 1977 to November 1977].
- He was the only governor of the RBI to have risen to the position from the central bank's ranks.
- He is most recognized for the role he played in liberalizing India's banking and financial system.
- He is rightfully the architect of modern Indian banking.
- What is seen in the banking system today in terms of the struggle to bring about change, had its genesis documented in Narasimham's epochal reports.

How did the banking system take in these recommendations?

- **BIS** - The first was bringing in prudential concepts as propounded by the Bank for International Settlements (BIS).
- These were regarding income recognition, capital adequacy, quality of assets, provisioning, etc.
- These concepts took time to digest, and the RBI played a stellar role in bringing them in a calibrated manner so that the system was not disrupted.
- Basel II and Basel III were extensions of the same course.
- To note, the RBI took time to bring the 90-day concept for recognising non-performing assets (NPAs) so that the system was able to absorb this rule.
- **Private banks** - He had propagated the concept of having more private banks.
- This was a timely recommendation as the system was typified by public sector banks (PSBs), given the shadow of nationalisation.
- Getting in new private banks has brought about a technology revolution in the banking sector.
- They have now permeated all banks, making the system globally comparable.
- Along with this suggestion was the extended frame provided to foreign banks to operate in India.
- There was also a firm signal that there would be no further nationalisation.
- **Interest rates** - The interest rates on deposits and loans were to be freed.
- This was significant because until that point of time all decisions came from the 'above'.
- Here, RBI had gradually moved towards giving banks the freedom to fix their rates on the deposits side.
- However, the lending side is once again back to the fold of partial regulation, with the central bank asking them to follow a formula.
- **CRR & SLR** - The reports argued for sharp reductions in the CRR (Cash Reserve Ratio) and the SLR (Statutory Liquidity Ratio) of banks.
- While banks argue against having a CRR, the system had a rate of 15% in 1989 and again in 1994, after which it has been brought down to 4%.
- The SLR at its peak was at 38.5% in 1990.
- The move to lower these pre-emption reserves owes a lot to the recommendations.

- **Government securities** - The concept of marking-to-market the portfolio of government securities was again a takeaway from the report.

- This was a way of making them market-oriented and also ensuring that the real value of bonds was accounted for by banks.

- **Four-tiered structure of banks** - Narasimham had suggested creating a four-tiered structure of banks, which is seen for the past three decades.

    i. large banks that can be globally competitive

    ii. regional banks that serve specific purposes

    iii. niche banks that cater to communities

    iv. new small banks and payments banks

- This was subsequently strengthened by an RBI committee where differentiated banks were spoken of.

- **Weak banks** - The identification of weak banks and putting conditions was again a concept from the reports.

- It is from this that the RBI has drawn the PCA (Prompt Corrective Action) policy.

- The report suggested ways to tackle such banks and get them out of the mess with narrow banking being an intermediate route.

- **Transparency** - The reports recommended introduction of transparency in bank accounts.

- Today, all annual reports include all disclosures and follow fixed formats.

- It is thus now possible for one to analyse any aspect pertaining to all banks in a uniform manner.

- **Mergers** - The concept of mergers across the financial sector was envisioned in terms of synergies being created.

- The report also spoke of mergers between PSBs, which is now a reality.

What are the key recommendations yet to be fulfilled?

- **Privatisation of PSBs** - This is something that the government is looking at seriously, as per the Union Budget of 2021-22.

- Banks are being targeted for full disinvestment.

- Given that PSBs that have been merged are out of this loop, it looks like the candidates would be smaller ones.

- These may not have the best financials, though are bestowed with strong infrastructure and processes.

- **Remuneration** - The remuneration factor was something that Narasimham had spoken of for PSBs as recruitment was to be made independent.

- There has been no attempt here on the pay structure, which is still a bargaining process.

- The Indian Banks' Association (IBA) plays a vital role here.

- However, in a rather feeble manner, lateral hiring with market-related salaries for specialised posts has come in from the backdoor.

- Now, even some of the large PSBs have a lateral recruit as a CFO.

- **Priority sector** - The reports recommended reducing the amount of lending that had to go to the priority sector from 40% to 10%.

- There has been no change in this regard and it looks unlikely that this issue will ever be discussed.

- Given the political economy, it looks expedient for governments to retain this limit to show that they are pro-poor.

- There can be arguments on the legitimacy of such lending.

- However, the fact is that if 40% of lendable resources are to be directed at pre-decided sectors, there is less flexibility for banks when it comes to lending.

- **Deposit insurance** - The reports had also recommended differentiated deposit insurance premium for banks.

- This is notable because banks carrying a higher risk on their lending portfolio would be made to pay a higher premium for cover on their deposits.
    - [This is based on the CAMELS (capital adequacy, asset quality, management quality, earnings, liquidity, and sensitivity to market risk) score of RBI.]
- This will be quite appropriate to ensure that banks pay more attention to the quality of assets.
- In all, three decades down the road a lot had changed, albeit gradually.
- On the whole, the progress made is satisfying, given the socio-economic conditions in the economy, but structural changes take time.

7.4   Re-examining the EPF Tax Rules

Why in news?

The new EPF tax rules will come into effect from April 1, 2021 as announced in the Union Budget of 2021.

What was the existing rule?

- If a person contributes more than the limit prescribed under **Section 80C of the Income Tax Act**, he cannot get a tax break on his excess contribution.
- The earnings on contributions rarely suffered taxation since tax laws pegged tax-free earnings to higher rates than the interest rate on the EPF.
- Moreover the person will pay tax on their corpus, only if he withdrew it within 5 years from the comment of the contribution.
- This taxation framework incentivised employees to use the EPF as their primary retirement saving and it acted as risk-free retirement savings mode.

What is the new rule?

- The new tax regulation will label a person as a high net worth individual if he misuses EPF by contributing more than Rs 2.5 lakh per annum to the EPF.
- The limit is Rs 5 lakh in cases where employers do not make contributions to the provident fund.

What is the issue with new rules?

- With the new rule coming into effect, government assumes what is adequate for an individual on retirement.
- The decision on a common threshold of adequacy is incorrect and suffers from the flaw of one-size-fits-all approach.
- Moreover the word **'misuse'** that was used to justify the imposition of the tax is difficult to comprehend.
- This is because EPF is solely a payroll deduction and cannot be contributed in any other manner.
- The new clause of taxing the amount exceeding the limit prescribed in the act brings the EPF to the borders of double taxation.
- 65% of EPF is invested in government securities and rest is invested in largely in PSU bonds and earnings available to the employee through interest credit mechanism.
- Despite the stickiness of these interest rate declarations and their often being higher than market rates, it is certain that the government does not subsidise this interest rate credit.

Why it is difficult to administer?

- In addition to these flaws, there are difficulties in administrating the new tax rule.
- Due to the changed of threshold fromRs 2.5 lakh to Rs 5 lakh, there can be various interpretations surrounding the applicability to EPF.
- It is also unclear if the interest on such excess contributions is taxed once during the year of contribution or throughout the term of investment in EPF.
- The mechanism of tax communication from the EPFO to the member also remains uncertain.

What are the takeaways from this?

- The EPF remains a subsidy-free, pay-what-is-earned retirement fund and typifies safety with governance.

- Though pension funds are seen by governments in multiple policy contexts, they should remain, foremost, the retirement funds of the beneficiaries.

- Regulations governing contributions, taxation, investments, administration and benefits should be made in the interest of the beneficiary.

- But it seems that other imperatives dominate the agenda in pension policymaking in India.

- Therefore, the resultant outcomes are sub-optimal from a beneficiary point of view.

- Therefore the policy makers need to relook the new rules and the immediate rollback of it demonstrates the will of the policymakers to encourage retirement savings.

7.5   Success of Inflation Targeting

Why in news?

The government can continue with the current Monetary Policy regime after it successfully completed its five year term.

What is the history behind the Inflation targeting?

- In May 2016, the Reserve Bank of India (RBI) Act, 1934 was amended to provide a Constitutional basis for the implementation of the flexible inflation targeting (FIT) framework.

- The act allows the Centre to set the inflation target in consultation with the RBI once every five years.

- On that basis, India's inflation target was set at 4 % with a 2 % extension in the upper bound and 2 % in the lower bound.

Was this policy implementation successful?

- The average inflation rate measured through the GDP deflator which was 5.69 % five years in the pre-inflation targeting period has declined to 3.47 % in the last five years.

- India is one of the highest achievers of reducing inflation when compared to other Asian Nations..

- Consumer Price Index (CPI) inflation declined from 8.26 % during the 2011-2015 to 4.99 % in 2016-2019, a 3.27 % point fall.

- This is highest among both inflation-targeting countries as well as those that did not adopt it.

- India has also achieved a substantial fall in average inflation volatility during the said period.

- It was 7.93 % for five years before inflation targeting now declined to 0.89 % during the inflation targeting regime.

- This fall is highest compared to Indonesia, Thailand, Philippines and Korea.

How is this possible?

- This is possible because of the Central government's strong coordination with monetary policy committee despite fiscal dominance in developing countries like India.

- This maintenance of a stable inflation rate provides certainty to inflation and investment decisions for sustainable growth.

- However, some critics of inflation targeting feel that its sole focus on price stability ignores growth imperatives.

- But the RBI Act rightly opted for maintaining price stability as its prime objective while giving due importance to economic growth.

- The real GDP growth did not decline during this period which was 6.50 % during 2011-2015 increased marginally to 6.63 % during 2016-2019.

How has transparency got improved?

- The Inflation Expectations Survey of Households (IESH) shows that the inflation expectation has been forward-looking in the post inflation targeting period in India.

- The lagged impact of past inflation expectations on current inflation expectations was significantly higher before the adoption of inflation targeting.

- This lagged dependency has fallen in the FIT framework regime which suggests that households are increasingly using the current and future information to form inflation expectations.

- This implies that transparency in monetary policy is helping to reduce inflation expectations.

How is this transparency is possible?

- RBI is following the international practices to increase communication with financial markets and the citizens.

- The frequency of the Monetary Policy Committee meeting is set at 6 times per year which is in line with most of the developed countries.

- RBI takes two weeks to release minutes of the proceedings of MPC, which provides a forecast of CPI inflation and GDP growth.

- Further, every 6 months, the RBI publishes a Monetary Policy Report where it explains the sources of inflation and provides an inflation forecast for 6-18 months ahead.

What can we infer from this?

- The inflation targeting in India has been a success story and India must continue with the FIT regime.

- The RBI has toiled to achieve its credibility and has rightly earned the goodwill and confidence of the financial markets around the world.

- The review committee should try to find out areas of further improvement in the monetary policy framework which will strengthen the MPC to achieve the inflation target.

- It should also disclose the models used in inflation and GDP forecasting as other inflation-targeting countries do.

- Further, the RBI may include a forecast of core inflation in the minutes.

8. ENVIRONMENT

8.1   Ethanol Blending

Why in news?

Recently steps are being initiated to accelerate India's ethanol blended petrol programme.

What is the current status of blending?

- In 2017, ethanol blending was less than 2% and has never exceeded 5% blending thus far.

- In the first four months of the current supply year (December 2020 to November 2021), about 80 crore litres of ethanol was supplied to the fuel pumps.

- This can translate to a blending ratio of 7% and if supplies continue at this pace, the blending ratio could reach 8.5% for the full year.

What are the benefits of this programme?

- This programme can reduce India's fossil fuel dependence and trim the large crude oil import bill.

- This can help in achieving the targets set in the National Bio fuels Policy - 10% ethanol blending by 2022 and 20% by 2025.

- But India's EBP programme has often come under some issues.

What is the problem with the programme now?

- The sugar industries and oil marketing companies (OMCs) are taking an opportunistic approach to the EBP which has proved to be undoing.
- Though sugar mills make strident demands for higher blending to get rid of excess cane, they are reluctant to stick to the fixed annual supplies.
- In deficit years, they prefer to divert more cane to sugar and alcohol to industrial or potable uses in the hunt for better margins.
- On the other hand OMCs have failed to take their contracted quantities of ethanol when imported crude oil becomes cheaper.

What are the steps taken to address this?

- The Centre has established some ground rules in the last three years —
    1. Setting annual supply obligations for sugar millers;
    2. Fixing the selling prices for ethanol produced through different routes;
    3. Requiring OMCs to pay these prices with reasonable transportation costs;
- This has helped in rising the ethanol supplies from 38 crore litres in 2013-14 to a targeted 262 crore litres in 2020-21.
- In the above targets, sugar industry alone owns the capacity for 300-350 crore litres.
- The 20% blending ratio target will roughly require 1,000 crore litres of ethanol.
- For this OMCs have to invest in distillery capacity and storage and blending infrastructure.

8.2 Low-Carbon Future

Why in news?

In the recently organised Leaders' Climate Summit, there is a debate whether India should announce net-zero emissions target.

What should be India's approach?

- IPCC 1.5°C report called for global carbon emissions to reach net-zero by 2050.
- India being a climate-vulnerable country, it must contribute to limit the global temperature rise ideally below 1.5°C.
- While doing so, it should not lose sight of the history of global climate negotiations and its own developmental needs.
- By announcing net-zero commitment, India risks taking a heavier burden of decarbonisation than many wealthier countries.
- Hence focused near-term sectoral transformations through aggressive adoption of technologies can be adopted.

How can we de-carbonise the power sector?

- Electricity sector is the single largest source (about 40%) of India's greenhouse gas emissions.
- De-carbonising the electricity sector would require transformational changes in urbanisation and industrial development.
- For example, electricity should be used for transport and integrating electric systems into urban planning.
- Till now electricity sector is focussing on expanding renewable electricity capacity-175GW of renewable capacity by 2022.
- It now needs a comprehensive shift going beyond expanding the renewable energy targets.
- This can be done by limiting the expansion of coal-based electricity capacity.

How can this be done?

- First India can pledge that it will not grow its coal-fired power capacity beyond what is already announced and reach peak coal electricity capacity by 2030.

- It should also strive to make existing coal-based generation cleaner and more efficient.

- Second, multi-stakeholder Just Transition Commission can be created to represent all levels of government and affected communities to ensure decent livelihood opportunities to people in the India's coal belt.

- This is necessary because the transition costs of a brighter low-carbon future should not fall on the backs of India's poor.

- Third, existing problems of the sector such as the poor finances and management of distribution companies needs to be addressed.

- Finally, India will need to work hard to become a leader in technologies of the future such as electricity storage, smart grids and technologies that enable the electrification of other sectors such as transportation.

How can we improve energy services?

- Growing urbanisation and uptake of electricity services offer a good opportunity to shape energy consumption within buildings through proactive measures.

- Air conditioners, fans and refrigerators together consume about 60% of the electricity in households.

- India could set aggressive targets- 80% of air conditioner sales and 50% of fan and refrigerator sales in 2030- should be most efficient.

- This will reduce green house gas emissions and benefit the consumer by lowering their electricity bills.

- India can leverage this transition too as an opportunity to become a global leader in production of clean appliances.

- Such a sector-by-sector approach can be developed for other sectors which can set a path towards net zero emissions and achieve the Paris Agreement targets.

- India can also come out with timelines for achieving climate targets.

8.3   Antarctica's Doomsday Glacier

Why in news?

Recently, the melting of Doomsday Glacier in Antarctica is a cause of concern because of its high potential in speeding up the global sea level rise.

What is the glacier and why is it important?

- Doomsday Glacier also called as thwaites Glacier situated in Antarctica which is 120 km wide at its broadest, fast-moving.

- It is important for Antarctica as it slows the ice behind it from freely flowing into the ocean.

- Due to its large size, it contains enough water to raise the world sea level by more than half a metre.

- It is found that amount of ice flowing out of it has nearly doubled over the past 30 years and now it's melting at faster rate due to the supply of warm water flowing underneath.

- Now the thwaites's glacier melting has contributed to 4% of global sea level rise and it is estimated that the glacier would collapse into the sea in 200-900 years.

- Due the risk it faces and poses, thwaites is often called the Doomsday Glacier.

What did the previous studies say about the glacier?

- A 2019 study had discovered a fast-growing cavity in the glacier and deployed an ocean-sensing device called Ice Fin to measure the waters moving below the glacier's surface.

- In 2020, researchers from New York University (NYU) detected warm water at a vital point below the glacier which reported that the water at just two degrees above freezing point at thwaites's grounding line.

- The grounding line is the place below a glacier at which the ice transitions between resting fully on bedrock and floating on the ocean as an ice shelf.

- The location of the line is a pointer to the rate of retreat of a glacier.

- When glaciers melt and lose weight, they float off the land leading to retreating of the grounding line.

- This exposes more of a glacier's underside to seawater thereby accelerating the melting process.

- This results in the glacier stretching out and thinning thereby causing the grounding line to retreat ever further.

What has the new study revealed?

- The new study used an uncrewed submarine to go under the thwaites glacier front to make observations.

- The submersible called Ran was used to measure the strength, temperature, salinity, oxygen content of the ocean currents that go under the glacier.

- Using the results, the researchers mapped the ocean currents that flow below thwaites's floating part.

- They also identified three inflows of warm water among them one has the potential to create severe damage which is underestimated in the past.

- The study also looked at heat transport in one of the three channels which brings warm water towards the glacier from the north.

Why is this a cause of worry?

- The study shows that warm water is approaching the pinning points of the glacier from all sides.

- This will impact the locations where the ice is connected to the seabed and places where the ice sheet finds stability.

- This can also make things worse for thwaites glacier, whose ice shelf is already retreating.

- But with the current data scientist can model the dynamics of thwaite's glacier which can help in calculating the ice melting in the future.

- This will reduce the great uncertainty that now prevails around global sea level variations.

8.4   Forest Fires in India

What is the issue?

- Uttarakhand has witnessed over 1,000 incidents of forest fire over a six months period.

- With increasing frequency of forest fires in India, here is a look at the various aspects of it.

What is the recent flare?

- Since the start of 2021, there has been a series of forest fires in HP, Nagaland-Manipur border, Odisha, MP, and Gujarat.

- These include the forest fires in wildlife sanctuaries.

- January 2021 saw prolonged fires in Uttarakhand, Himachal Pradesh (Kullu Valley) and Nagaland-Manipur border (Dzukou Valley).

- The recent one in Nainital began in March-end.

- The Simlipal National Park in Odisha saw a major fire between February-end and early March.

- Recent fires also include those in Bandhavgarh Forest Reserve in Madhya Pradesh, and in sanctuaries for the Asiatic lion and the great Indian bustard in Gujarat.

Why is this unusual?

- April-May is the season when forest fires take place in various parts of the country.

- But forest fires have been more frequent than usual in Uttarakhand and have also taken place during winter.

- Dry soil caused by a weak monsoon is being seen as one of the causes.

How fire prone are India's forests?

- As of 2019, about 21.67% (7,12,249 sq km) of the country's geographical area is identified as forest.

- This is according to the India State of Forest Report 2019 (ISFR) released by the Forest Survey of India (FSI), Dehradun.

- Tree cover makes up another 2.89% (95, 027 sq km).

- Based on previous fire incidents and recorded events, the 2020-2021 annual report of the MoEFCC makes the following categorisations:

- Forests of the Northeast and central India regions - <u>most vulnerable</u> areas to forest fires

- Forests in Assam, Mizoram and Tripura - '<u>extremely prone</u>' to forest fire

- States with large forest areas including Andhra Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Maharashtra, Bihar and UP - '<u>very highly prone</u>' category

- Western Maharashtra, Southern Chhattisgarh and areas of Telangana and Andhra Pradesh, along with central Odisha are also turning into 'extremely prone' forest fire hotspots.

- Areas under the 'highly prone' and 'moderately prone' categories make up about 26.2% of the total forest cover.

- **Uttarakhand and Himachal Pradesh** are the two states that witness the most frequent forest fires annually.

- In Uttarakhand, over 45% of the geographical area (24,303 sq km) is under forest cover.

- The FSI has identified forests along the south, west and southwest regions of Uttarakhand as being prone to varying intensities of forest fires.

- These comprise Dehradun, Hardwar, Garhwal, Almora, Nainital, Udham Singh Nagar, and Champawat districts.

What are the key causes of forest fires?

- Forest fires can be caused by a number of natural causes.

- But, reportedly, many major fires in India are triggered mainly by human activities.

- Emerging studies link climate change to rising instances of fires globally.

- This is especially true in the case of the massive fires of the Amazon forests in Brazil and in Australia in the recent years.

- Fires of longer duration, increasing intensity, higher frequency and highly inflammable nature are all being linked to climate change.

- In India, forest fires are most commonly reported during March and April.

- This is when the ground has large quantities of dry wood, logs, dead leaves, stumps, dry grass and weeds.

- These can make forests easily go up in flames if there is a trigger.

- Under natural circumstances, extreme heat and dryness, friction created by rubbing of branches with each other also likely initiate fire.

- In Uttarakhand, the lack of soil moisture too is being seen as a key factor.

- In two consecutive monsoon seasons (2019 and 2020), rainfall has been deficient by 18% and 20% of the seasonal average, respectively.

- But, forest officials say most fires are man-made, sometimes even deliberately caused.

- Even a small spark from a cigarette butt, or a carelessly discarded lit matchstick can set the fire going.

- E.g. in the recent major fire in Simlipal forest in Odisha, villagers are known to set dry leaves to fire in order to collect mahua flowers, which go into preparation of a local drink

What are the challenges to control measures?

- The locality of the forest and access to it pose hurdles in initiating fire-fighting efforts.

- During peak season, shortage of staff is another challenge in dispatching fire-fighting teams.

- Timely mobilisation of forest staff, fuel and equipment, depending on the type of fire, through the thick forests remains challenging.

- This is because it is impossible to transport heavy vehicles loaded with water into the thick forests.

- So, a majority of fire dousing is initiated manually, using blowers and similar devices.

- But there have been incidents when forest fires were brought under control using helicopter services too.

- Wind speed and direction also play a critical role in bringing forest fire under control.

- The fire often spreads in the direction of the winds and towards higher elevations.

What are the associated concerns?

- Forests play an important role in mitigation and adaptation to climate change.

- They act as a sink, reservoir and source of carbon. A healthy forest stores and sequesters more carbon than any other terrestrial ecosystem.

- In India, notably, 1.70 lakh villages are in close proximity to forests (Census 2011).

- So, the livelihood of several crores of people is dependent on fuelwood, bamboo, fodder, and small timber.

- Forest fires can have multiple adverse effects on the forest cover, soil, tree growth, vegetation, and the overall flora and fauna.

- Fires render several hectares of forest useless and leave behind ash, making it unfit for any vegetation growth.

- Heat generated during the fire destroys animal habitats.

- Soil quality also decreases with the alteration in their compositions. Soil moisture and fertility, too, is affected.

- Thus, forests can shrink in size.

- The trees that survive fire often remain stunted and growth is severely affected.

What are the measures taken in this regard?

- Since 2004, the FSI developed the Forest Fire Alert System to monitor forest fires in real time.

- In its advanced version launched in January 2019, the system now uses satellite information gathered from NASA and ISRO.

- Real-time fire information from identified fire hotspots is gathered using MODIS (Moderate Resolution Imaging Spectroradiometer) sensors (1km by 1km grid) and electronically transmitted to FSI.

- This information is then relayed via email at state, district, circle, division, range, beat levels.

- Users of this system in the locality are issued SMS alerts. Notably, the FSI system in January 2019 had over 66,000 users.

9. INTERNAL SECURITY

9.1   Chhattisgarh Maoist Attacks

Why in news?

Recently in Chhattisgarh in a massive security operation 23 jawans got killed in Maoist ambush.

What was the security operation?

- It was a massive operation which included the Special Task Force (STF), District Reserve Guard (DRG) and District Force of the Chhattisgarh Police, the CRPF and its elite COBRA unit.

- About 1,000 personnel were deployed from Bijapur alone where in 10 teams were launched— two from Sukma district and eight from three camps in Bijapur.

- Six of the eight Bijapur teams were launched from the Tarrem camp while the other two were from Usur and Pamed camp.

- Of the six teams, three — one comprising of DRG and STF, another of DRG team and one COBRA team — were launched.

- The operational plan was to travel to Alipuda and Jonaguda, 11 and 12 kilometres south of Tarrem respectively.

How was the intelligence gathered?

- The Chhattisgarh Police said that the operation was launched based on intelligence inputs of the commander of lethal Battalion 1 of the Maoists.

- The operational plan was based on information from the state SIB on the presence of 60 to 70 Maoists in Silger, IB inputs of 40-50 Maoists at Bodaguda and other local intelligence inputs.

- One of the primary sources of information is the intercepts of information from a receiver police who was placed on a hill in Dantewada.

- In Minpa region, the Maoists know forces are listening to their code.

How did the plan fail?

- The two villages that the security personnel passed, Jhiragaon and Teklagudem, were completely empty.

- When the forces didn't find anything at the original target, they returned back.

- During the course of return, the Naxals covered the forces from all sides and attacked them who had sophisticated weapons and used in abundance.

- The kind of fire which came and the positions the naxals took was well-planned.

- The gunbattle began in Tekulugudam, around 12 km from the Tarrem camp.

- Once driven down the Tekulugudam hill, some of the security personnel seeked shelter in the houses but were attacked by bullets, UBGLs, along with hand grenades.

- Following this, the personnel were chased down the hill into the open plains.

Why it failed?

- The entire concept of large 1,000-personnel-plus operations needs to be relooked as this needs concerted thought which the security personnel haven't done.

- When there are large troop movements in a large operation, senior officers fly in and fly out, travel between camps happen often and it is too unwieldy to be kept quiet.

- So the Maoists had much time to strip the security forces and their weapons.

- In successful operations like the Greyhounds, there were small teams that hit based on solid human intelligence.

- This has to be done in the upcoming operations else the game of death and loss will keep happening.

- Hence there should be deep consideration of Maoist tactics and security forces and not knee-jerk response and ill-planned operations.

PRELIM BITS

10. HISTORY, ART & CULTURE

Thotlakonda Buddhist Site

- Recently, historians and biologists campaigned to protect the ancient Buddhist site of Thotlakonda, which is found at a hill of Mangamaripeta Village, Visakhapatnam District, Andhra Pradesh.

- In 1976, during a survey by the Indian Navy to set up a naval facility, ruins of the Buddhist site were spotted.

- Subsequently, the entire hill was declared as an area comprising a protected monument under the Andhra Pradesh Ancient and Historical Monument and Archaeological Sites and Remains Act, 1960.

- The State Archaeology Department's excavation (1988-1992) found - ancient pottery, Satavahana coins and Roman coins, labels with Brahmi inscriptions, inscribed Chhatra pieces, terracotta and glass beads, bangles, and stuccos and stone sculptural remains.

- It gave a clear indication that the area housed remnants of a flourishing monastery, practising **Hinayana Buddhism**, which was most active for 400 years from 200 BCE to 200 CE.

- To know more about Thotlakonda Site, click here.

11.   GEOGRAPHY

Suez Canal Lakes

- Due to the blockage of the Suez Canal, the $200 billion of India's trade flows with Europe, North America and South America is at risk.

- Opened in 1869, Suez Canal is an artificial sea-level waterway in Egypt.

- It connects the Mediterranean Sea to the Red Sea through the Isthmus of Suez in Egypt, and divides Africa and Asia.

- It offers watercraft a more direct route between the North Atlantic and northern Indian oceans, avoiding the South Atlantic and Indian oceans.

- It provides the shortest maritime route between Europe and the lands lying around the Indian and western Pacific oceans.

- There are many lakes in the Suez Canal.
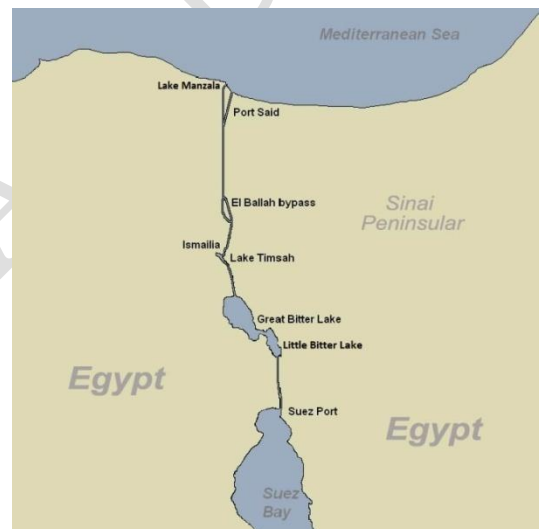
Umngot River

- People of Meghalaya's villages fear the death of Umngot River and their tourism-based livelihood if the 210 MW hydroelectric project comes up.

- Umngot River is considered as the cleanest river in India and in some parts is as transparent as crystal and you can actually see the river bed.

- This river, which flows in both India and Bangladesh, is in Meghalaya.

- It is the natural boundary between RiPnar (of Jaintia Hills) with HimaKhyrim (of Khasi Hills).

- Over this river hangs a single span suspension bridge called Dawki Bridge.

La Soufriere Volcano Eruption

- Sulphur dioxide (SO2) emissions from La Soufriere volcanic eruption in the Caribbean have reached India, sparking the fear of increased pollution levels in the northern parts of India and acid rain.

- Volcanic plumes reached a height of 20 kms above the Earth's surface, seen by the Multi-Angle Imaging Spectro Radiometer instrument on NASA's Terra satellite. It will cause aviation and air quality hazards.

- La Soufrière has delivered 0.4-0.6 teragram of SO2 into the upper atmosphere which is the highest-ever recorded after satellites started observing the Earth's atmosphere in the mid 20th century.

> **La Soufrière**
>
> - It is a volcano on St Vincent Island in the West Indies. It is one of the 45 currently erupting volcanoes on Earth. Last eruption was in 1979.
>
> - It is a stratovolcano with a crater lake and is the St Vincent Island's youngest and northernmost volcano.

Effects of Sulphur Emissions

- Emission particles in the relatively dry stratosphere last much longer and travel much farther than if they remain in the troposphere.

- This might be the reason that the particles have reached as far as India and will likely travel beyond to reach South East Asia.

- The impacts from volcanic injections into the stratosphere come from the conversion of sulphur dioxide to sulphuric acid, which condenses rapidly in the stratosphere to form fine sulphate aerosols.

- These aerosols increase the reflection of radiation from the Sun back into space, cooling the Earth's lower atmosphere or troposphere.

Jammu and Kashmir Lakes

- Srinagar's Dal Lake along with five other ones in Jammu and Kashmir are to be declared protected wetlands.

- Other lakes - Wular Lake, Nigeen Lake in the Kashmir region; Sanasar Lake, Manasbal Lake and Purmandal lake or Chotta Kashi (in Samba district) in the Jammu region.

- The decision was taken in the meeting of the Jammu and Kashmir Wetland Authority, chaired by Chief Secretary.

- Chief Secretary asked the Forest Department to profile various wetlands of Jammu and Kashmir and recommend their notification under, Environment Protection Act, 1986 and Wetland (Conversation & Management) Rules.

- [Forest Department is the nodal department for the preparation of digital inventory, documentation and development of a geo-spatial database on wetlands.]

- of 'Sankalp se siddhi'.

Pobitora Wildlife Sanctuary

- Two One-Horned rhinos from Pobitora Wildlife Sanctuary were released in the central part of Bansbari range of Manas National Park (MNP).

- This is 8th round of rhino translocation under the Indian Rhino Vision 2020.

- Pobitora Wildlife Sanctuary is situated in the flood plains of River Brahmaputra in the Morigaon district of Assam.

- It has the highest concentration of endangered one-horned rhinos (Rhinoceros unicornis) in the world.

- It is called 'Mini Kaziranga' due to similar landscape and vegetation.

- **Boundary** - Garanga Beel on the south and River Brahmaputra on the North, rest of the boundary are artificial and surrounded by 27 villages.

- **Fauna** - One-horned rhinoceros, Chinese pangolins, Leopard cat, Fishing cat, Jungle cat, etc.

Navegaon-Nagzira Tiger Reserve

- A manmade forest fire was started at Navegaon-Nagzira Tiger Reserve (NNTR), which is situated in Gondia and Bhandara districts of Maharashtra.

- [Gondia District shares common boundaries with the state of Madhya Pradesh and Chhattisgarh in the north and eastern side respectively.]

- Almost all forest fires in central India are manmade, caused by those collecting mahua flowers and tendu leaves.

- Notified as the 46th tiger reserve of India in 2013, NNTR comprised of the notified area of Navegaon National Park, Navegaon Wildlife Sanctuary, New Nagzira Wildlife Sanctuary and Koka Wildlife Sanctuary.

- Strategically, the Tiger Reserve is located in the heart of central Indian Tiger landscape which contributes almost one sixth of the total tiger population of the country.

- NNTR has connectivity with the major tiger reserves in Central India,

1. Kanha and Pench tiger reserve (Madhya Pradesh),

2. Tadoba-Andhari Tiger reserve (Maharashtra),

3. Indravati Tiger Reserve (Chhattisgarh),

- It is indirectly connected to the Kawal and Nagarjuna Sagar in Telangana and Andhra Pradesh and, Achanakmar Tiger reserve in Chhattisgarh. It is also connected to important tiger bearing areas like Umred-Karhandla sanctuary and Brahampuri Division (Maharashtra).

Hospet-Vasco Da Gama Project

- This was cleared by the Standing Committee of the National Board for Wildlife (NBWL), despite warnings by a committee appointed by the Ministry of Environment, Forest and Climate Change (MoEF&CC).

- This project aims to double a railway track of the the Hospet-Hubballi-Londa-Vasco Da Gama railway line by the Rail Vikas Nigam Ltd (RVNL) in Karnataka and Goa passing through the Western Ghats.

- [The Western Ghats is one of the world's eight 'hottest hotspots' of biological diversity.]

- The project is divided into two phases,

1. Phase I covering the Hospet-Tinaighat stretch that is being funded by the Asian Development Bank (ADB) and

2. Phase II covering the Tinaighat-Vasco stretch. It diverts forest land in the Dandeli Wildlife Sanctuary (Karnataka) and the Bhagwan Mahaveer Wildlife Sanctuary and Mollem National Park (in Goa).

Dandeli Wildlife Sanctuary

- The Dandeli Wildlife Sanctuary s located in Uttara Kannada, Karnataka and is located on the banks of River Kali. It is part of the Kali Tiger Reserve, which was earlier called the Dandeli Anshi Tiger Reserve.

- [The Kali Tiger Reserve has two protected areas - Dandeli Wildlife Sanctuary and Anshi National Park]

- **Species found** - Crocodiles, barking deer, bison, Indian Mongolian, black panther, sambhar, tiger, leopard, elephant, flying squirrel and the Malabar giant squirrel, king cobra, or giant iguana.

Bhagwan Mahaveer Wildlife Sanctuary and Mollem National Park

- It is a protected area located in the Western Ghats in Goa, along the eastern border with Karnataka. It is situated near the town of Molem.

- It was first known as Mollem Game Sanctuary. It was declared a wildlife sanctuary in 1969 and renamed as Bhagwan Mahaveer Sanctuary.

- National Highway 4A divides it into two parts and the Mormugao - Londa railway line passes through the area.

- It contains several important temples dating to the Kadambas of Goa, and home to waterfalls, such as Dudhsagar Falls and Tambdi Falls.

- It is home to a community of nomadic buffalo herders called Dhangar.

12.   POLITY

Right to Choose Religion

- The Supreme Court said that the people are free to choose their own religion, while hearing a petition claiming mass religious conversion happening across the country.

- The Bench said that people have a right to freely profess, practise and propagate religion, subject to public order, morality and health, under the **Article 25** of the Constitution.

- It said that every person is the final judge of their own choice of religion or who their life partner should be.

- Courts can't sit in judgment of one's choice of religion or life partner.

- Religious faith is a part of the fundamental right to privacy, under the **Article 21** of the Constitution. This article equated the right to privacy with the rights to life, of dignity and liberty.

FASTag and Right to Freedom of Movement

- The Union government told the Bombay High Court that making FASTag mandatory for all vehicles plying on the national highways (NHs) doesn't breach a citizen's fundamental right to freedom of movement in any way.

- According to the Central Motor Vehicles Rules, FASTag (electronic toll collection system) is mandatory for all vehicles at toll plazas on NHs.

- [Section 136A of Motor Vehicles Amendment Act, 2019 says that the Central Government should make rules for the electronic monitoring and enforcement of road safety.]

- The Centre said that provisions had been made at all toll plazas along national highways to fit the chip in vehicles that did not have FASTag.

FASTag
- FASTag is an electronic toll collection system that uses Radio Frequency Identification (RFID) technology.
- It is a tag fixed on the windscreen of the vehicle that allows automatic deduction of toll without stopping for carrying out the cash transaction.
- To know more about FASTag, click here.

- It also said that the double user fees or penalties imposed on vehicles without FASTag on NHs were in accordance with National Highway Fee (determination of rates and collection) Rules, 2008.

Right to Freedom of Movement

- Article 19 of the Constitution guarantees Right to Freedom of movement.

- It gives every citizen the right to move freely throughout the country. It is protected against only state action and not private individuals.

- It is available only to the citizens and to shareholders of a company but not to foreigners or legal persons.

- **Restrictions** - Only be imposed on two grounds as per the Article 19 of the constitution, namely,

  1. Interests of the general public and

  2. Protection of interests of any scheduled tribe.

- While **Article 19** protects only the right to move inside the country, **Article 21** (Right to life and personal liberty) protects right to move out of the country and right to come back to the country.

Decriminalising Begging

- The Supreme Court has asked the Centre and five States (Maharashtra, Gujarat, Punjab, Haryana, Bihar) to file their response on a plea seeking a direction to repeal the provisions criminalising begging.

- This plea claimed that the provisions of the statute criminalising the act of begging were violative of constitutional rights, specifically Article 21 (Right to Life).

- The plea said that these provisions put people in a situation to make an unreasonable choice between committing a crime or not and starving.

- It has referred to the 2018 verdict of the Delhi High Court which had decriminalised begging in the national capital and said provisions of the Bombay Prevention of Begging Act, 1959.

- [Bombay Prevention of Begging Act, 1959 treats begging as an offence cannot sustain constitutional scrutiny.]

- It said that the government had the mandate to provide social security to everyone and ensure that all had basic facilities, as embedded in the Directives Principles of State Policy in the Constitution.

- The petition has sought directions to declare as "illegal and void" all provisions, except some sections, of

  1. Bombay Prevention of Begging Act, 1959,

  2. Punjab Prevention of Beggary Act, 1971,

  3. Haryana Prevention of Begging Act, 1971,

  4. Bihar Prevention of Begging Act 1951 and similar acts.

Appointment of Ad-hoc Judges

- To deal with mounting backlog of cases, the Supreme Court cleared the way for appointment of retired judges as ad-hoc judges in High Courts under Article 224A of the Constitution.
- There are almost 40% vacancies remaining in the regular appointments (both permanent and additional judges) over the last two years.
- So, the court ruled that the Chief Justice of a High Court may initiate the process of recommending a name if,
    1. Number of judges' vacancies is more than 20% of the sanctioned strength,
    2. Cases in a particular category are pending for over five years,
    3. More than 10% of pending cases are over 5 years old, or percentage of the rate of disposal is lower than the institution of the cases either in a particular subject matter or generally in the court.
- The Chief Justice of a High Court should prepare a panel of judges after personal interaction with the concerned judge to take their consent.
- The appointments can follow the procedure laid down in the Memorandum of Procedure for appointment of judges.
- Since the nominees have been judges before, the need to refer the matter to the IB or other agencies would not arise, shortening the time period.
- A Chief Justice should start the recommendation process three months in advance for such appointment.
- **Tenure -** Generally for a period between two and three years (may vary on the basis of the need.)
- **Number -** The number of ad-hoc judges in the court should be in the range of 2 to 5 for the time being (Depending on the strength of the High Court and the problem faced by it.)
- **Work** - Since the goal was to clear the backlog, the ad-hoc judges can be assigned more than five-year-old cases; however, this would not affect the High Court Chief Justice's discretion to allot any other matter.
- The ad-hoc appointees are barred from performing any other legal work - advisory, arbitration or appearing in court for clients.
- If a Division Bench needs to be constituted to hear a matter, it would comprise of only ad-hoc judges (not a mix of ad-hoc and sitting judges).
- **Allowances** - Their emoluments and allowances should be on a par with a permanent judge of that court minus the pension.
- They will be entitled to allowance/perks/perquisites as are available to permanent/additional judge(s).

Government of National Capital Territory Amendment Act, 2021

- The Government of National Capital Territory of Delhi (GNCTD) Amendment Act, 2021 that amends the Sections 21, 24, 33 and 44 of the GNCTD Act, 1991 has come into force.
- [The GNCTD Act, 1991 provides a framework for the functioning of the Legislative Assembly and the government of the NCT of Delhi.]
- **Restriction on laws passed by the Assembly** - The Amendment Act provides that the term "government" referred to in any law made by the Legislative Assembly will imply Lieutenant Governor (LG).
- **Rules of Procedure of the Assembly** - The Rules of procedure and conduct of business in the Assembly made by it must be consistent with the Rules of Procedure and Conduct of Business in the Lok Sabha.
- **Inquiry into administrative decisions** - The Amendment prohibits the Assembly from making any rule to enable itself or its Committees to consider the matters of day-to-day administration of the NCT or conduct any inquiry in relation to administrative decisions. Further, all such rules made before its enactment will be void.
- **Assent to Bills** - The Act requires the LG to reserve some Bills passed by the Assembly for the President's consideration. These Bills are those,
    1. Which may diminish the powers of the High Court of Delhi,
    2. Which the President may direct to be reserved,

3. Dealing with the salaries and allowances of the Speaker, Deputy Speaker, and members of the Assembly and the Ministers, or

4. Relating to official languages of the Assembly or the NCT of Delhi.

- The Amendment requires the LG to also reserve those Bills which cover any of the matters outside the purview of the powers of the Assembly.

- **LG's opinion for executive actions** - The Act specifies that all executive action by the government, whether taken on the advice of the Ministers or otherwise, must be taken in the name of the LG.

- The Amendment Act adds that on certain matters, as specified by the LG, his opinion must be obtained before taking any executive action on the decisions of the Minister/ Council of Ministers.

Amendments to Finance Bill 2021

- The Union Cabinet gives ex-post facto approval for the Government amendments to the Finance Bill, 2021 (enacted in March, 2021 as the Finance Act, 2021).

- These Government amendments will clarify the proposals further and address stakeholders concerns arising out of amendments in the Bill.

- **Objectives** - The amendments shall provide equity and inclusiveness to all the taxpayers by addressing stakeholders concerns.

- The amendments to the Finance Bill, 2021 are tax proposals which shall generate timely revenue for the Government and streamline existing provisions by addressing grievances of the taxpayers.

Subsidy Policy for Urea

- The Union Cabinet approved an exclusive subsidy policy for urea produced through **coal gasification** by Talcher Fertilizers Limited (TFL).

- [TFL is a joint venture company of four PSUs - Rashtriya Chemicals & Fertilizers, GAIL (India), Coal India and Fertilizer Corporation of India, which was incorporated in November 2015.]

- TFL Urea project would assist in reducing urea imports to the tune of 12.7 lakh tonne per annum leading to savings in foreign exchange.

Maharashtra's Two-child Norm

- Recently, a woman prison officer in Maharashtra was dismissed from service after an inquiry revealed that she suppressed the information of having had three children prior to her joining the department in 2012.

- The Maharashtra Civil Services (Declaration of Small Family) Rule of 2005 makes the Small Family norm an additional essential requirement for Groups A, B, C, D of Maharashtra government employees.

- It defines a small family as wife, husband and two children.

- It stipulates that a person is not eligible for a job with Maharashtra Government if he or she has more than two children after 2005.

- The definition of child doesn't include adopted children.

Other States
• Maharashtra is one of the few states in the country that have a 'two children' policy for appointment in government jobs or for the elections of some local government bodies.
• Other states with children norm - Rajasthan, Madhya Pradesh, Andhra Pradesh and Telangana, Gujarat, Odisha, Uttarakhand and Assam.

- It mandates filing a small family declaration at the time of applying for a government job.

- A person having more than two children on the date commencement of the rule (March 28, 2005), shall not be disqualified so long as the number of children on the date of commencement does not increase.

- Also, one or more than one children are born in a single delivery within a year of commencement, shall not be considered for the disqualification of the rules.

- The rules also empower the state government to give relaxation in 'just and reasonable' manner and mandates recording such reasons.

Goa Infrastructure Projects

- The Central Empowerment Committee (CEC) of the Supreme Court asked the SC to consider revoking the permission granted for the doubling the railway line from Castle Rock (Karnataka) to Kulem (Goa).

- The CEC has raised concerns over the environmental impact of the double-tracking project saying that it will destroy the fragile eco-system of the Western Ghats.

- The CEC examined the proposals cleared by the Standing Committee of the National Board for Wildlife (SC-NBWL) for the three linear projects within the boundaries of Wildlife Sanctuary and National Park in Goa,

  1. Double-tracking of railway tracks,

  2. Four-laning of a national highway, and

  3. Goa-Tanmar Transmission Project.

- These projects will cut through the Bhagwan Mahaveer Wildlife Sanctuary (BMWS) and Mollem National Park (MNP) in South Goa.

- These projects were alleged violating the 2015 Supreme Court order on matters relating to the National Park I Wildlife Sanctuaries and contravention of the Wild Life (Protection) Act, 1972.

13.   GOVERNMENT INITIATIVES

Dindori Project

- International Fund for Agricultural Development (IFAD) has supported an initiative to revive kodo millet and kutki (little millet) cultivation in Dindori district of Madhya Pradesh.

- The IFAD project was started in 2013-14, with women-farmers from 40 villages - mostly from the Gonda and Baiga tribes - growing these two minor millets.

- The identified farmers were supplied good-quality seeds and trained by Jawaharlal Nehru Agricultural University in Jabalpur and the local Krishi Vigyan Kendra.

- They were trained on field preparation, line-sowing and application of compost, zinc, bavastin fungicide and other specific plant protection chemicals.

- Further, a federation of the farmers' self-help groups undertook procurement of the produce and also its mechanical de-hulling.

- [Mechanical de-hulling - Time-consuming manual pounding process to remove husk from the grain.]

- The IFAD project has helped in meeting nutritional goals and reviving millet cultivation.

Millets

- Millets score over rice and wheat, whether in terms of vitamins, minerals and crude fibre content or amino acid profile. They are gluten-free.

- In 2018, the Union Agriculture Ministry declared millets as "Nutri-Cereals", considering their "high nutritive value" and also "anti-diabetic properties". 2018 was observed as 'National Year of Millets".

- The UN General Assembly too adopted an India-sponsored resolution to mark 2023 as the "International Year of Millets".

Agroforestry in Silk Sector

- Agriculture Ministry signed a MoU with the Central Silk Board (under the Textiles Ministry) to implement Agroforestry in the silk sector under the ongoing Sub-Mission on Agroforestry (SMAF) Scheme.

- The signing of this MoU aims to incentivize the farmers to take up sericulture based Agroforestry models thereby contributing to the Make in India and Make for the World vision of the Prime Minister.

- It will add another dimension to agroforestry for faster returns to the growers as well as support the production of the range of silks.

- The Central Silk Board (CSB) will act as a catalyst to promote Agroforestry in the silk sector.

- The initiative of formalizing the collaboration is especially targeted for augmentation of sericulture host plants to be cultivated both as block plantations and border or peripheral plantations on farmlands.

- Planting sericulture based tree species on farm and rearing silkworms has the potential of creating additional income opportunities for farmers besides their regular source of income from agriculture activities.

Integrated Health Information Platform

- The Integrated Health Information Platform (IHIP), the world's biggest online disease surveillance platform, was launched.

- India is the first country in the world to adopt such an **Advanced Digital Surveillance System**.

- IHIP is the next generation highly refined version of the presently used Integrated Disease Surveillance Programme (IDSP) digital platform.

- It is in sync with the National Digital Health Mission and fully compatible with the other digital information systems presently in use.

- It can easily be integrated with other ongoing surveillance program, while having the feature of addition of special surveillance modules.

- It will track 33 diseases now as compared to the earlier 18 diseases.

- It will provide health information system developed for real time, case-based information, integrated analytics, advanced visualization capability that will enable evidence-based policy making.

- Data will be provided in real time through the,

  a) Grassroots healthcare workers through their gadgets (tablets);

  b) Doctors at the PHC/CHC/SHD/DH when the citizens seek healthcare;

  c) Diagnostic labs which will provide data on the tests carried out.

- It will provide analyzed reports on electronic devices. Outbreak investigation activities can be initiated and monitored electronically.

- India's information system for precision public health will deliver the right intervention at the right time, every time to the right population.

- This refined digital surveillance platform will help to provide and connect data and move towards 'One Health' approach.

Campaign on COVID-19 Vaccination

- A multipronged nationwide mass awareness campaign on Covid-19 vaccination is organized by the Indian National Young Academy of Sciences (INYAS).

- This campaign will be carried out through an android-based mobile app COVACNEWS made by INYAS for ensuring information at the fingertips.

- A pan-India info-graphic video and audio competition is being organised along with the GYAN TEEKA webinar series on COVID-19 vaccination.

Indian National Young Academy of Sciences

- This academy of young scientists was constituted by the Indian National Science Academy (INSA) in 2014 based on the

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Sub-Mission on Agroforestry (SMAF) Scheme

- The Department of Agriculture, Cooperation and Farmers Welfare (DAC & FW) has been implementing the SMAF scheme since 2016-17 as part of the recommendation of the National Agroforestry Policy 2014.

- India was the first country to have such a comprehensive policy which was launched at the World Agroforestry Congress held in Delhi in 2014.

- At present, it is being implemented in 20 States and 2 UTs.

- It encourages farmers to plant trees with the agriculture crops for climate resilience and an additional source of income to the farmers, as well as enhanced feedstock to wood-based and herbal industry.

- Hence there is a concerted effort to include medicinal, fruits, fodder, tree-borne oilseeds, lac host etc. in addition to the longer rotation timber species.

Indian National Science Academy

- Formerly known as National Institute of Sciences of India (NISI), the INSA was established in 1935. The name was changed to INSA in 1970.

- **Objective** - To promote science in India and harness scientific knowledge for the cause of humanity and national welfare.

- In 1945, the institute was recognized by the Government of India as the premier scientific society of India, representing all branches of science.

- In 1968, it was designated as the adhering organization in India to the International Council for Science (ICSU) on behalf of the Government.

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recommendations of the INSA-constituted committee with Rajesh Gopakumar as chair.

- This academy came into existence as an activity of INSA in 2015.

- **Members** - 100 members, not exceeding the age of 40 years at the time of induction (20 new members shall be inducted as members each year.)

- Each person may remain a member for a fixed period of 5 years.

- **Advisory Board for INYAS** - INSA President, 6 Vice-Presidents and Executive Director.

Mission COVID Suraksha

- It is led by the Department of Biotechnology and implemented by Biotechnology Industry Research Assistance Council (BIRAC).

- It has an end-to-end focus from preclinical development through clinical development and manufacturing and regulatory facilitation for deployment.

- This will help accelerate development of vaccine candidates and ensure that these are brought closer to licensure.

- It will ensure the introduction of these vaccines in the market for consideration of regulatory authorities for introduction in public health systems, to combat further spread of COVID infection.

- It will support the capabilities for process development, cell line development and manufacturing of GMP batches for animal toxicology studies and clinical trials.

- It will support the development of suitable Target Product Profile so that vaccines being introduced through the mission have preferred characteristics applicable for India.

- Phase-I of the Mission has been allotted Rs.900 Crore for a period of 12 months. A total of 10 vaccine candidates have been supported by Department of Biotechnology so far at both academia and industry.

Poshan Gyan

- NITI Aayog, in partnership with the Centre for Social and Behaviour Change, Ashoka University, and Bill and Melinda Gates Foundation, launched Poshan Gyan.

- Poshan Gyan is national digital repository on health and nutrition.

- It was conceptualized as a source, enabling the search of communication materials on 14 thematic areas of health and nutrition across diverse media types, languages, target audiences, and sources.

- It introduces a unique crowd sourcing feature that allows anyone to submit communication material for inclusion on the website, followed by a review by a designated committee.

- It will help to make nutrition a 'Jan Andolan' (People's Movement).

PM-FME Scheme for SHG Entrepreneurs

- To implement Pradhan Mantri Formalization of Micro Food Processing Enterprises (PM-FME) Scheme to support Self Help Group (SHG) entrepreneurs in food processing, the following are working together,

  a) Ministry of Food Processing Industries (MoFPI) and

Pradhan Mantri Formalization of Micro Food Processing Enterprises Scheme

- Pradhan Mantri Formalization of Micro Food Processing Enterprises (PM-FME) is a Centrally Sponsored Scheme launched by the MoFPI is being implemented for a period of 5 years from 2020-21 to 2024-25.

- This All India Scheme is for the Unorganized Sector.

- The expenditure will be shared by GoI and the States in ratio of 60:40.

Components of the Scheme

One District One Product

Upgradation of Individual Micro Food Processing Units

Support to FPOs / SHGs / Producer Cooperatives

Seed Capital to SHG

Common Infrastructure

Branding and Marketing Support

b) Deendayal Antyodaya Yojana - National Rural Livelihood Mission (DAY-NRLM) under the Ministry of Rural Development (MoRD).

- This will provide financial, technical and business support for upgradation of existing micro food processing enterprises.

- Both the Ministries decided to work closely on the component of providing **seed capital support** to SHG members.

- This involves working capital and purchase of small tools with the maximum permissible amount of Rs. 40,000/- per SHG member based on their existing business turnover and requirement.

- The State Rural Livelihood Missions in the States/UTs and the State Nodal Agencies appointed by MoFPI are executing the program closely.

- This involves identification of targeted eligible beneficiaries, capturing their aspirations & growth plans in the form of applications, digitize, review, recommend and approve them.

- The States will release funds to respective SHGs and SHG members through the network of community organizations - Cluster Level Federations (CLFs) and Village Organizations (VOs).

National Policy for Rare Diseases 2021

- The Union Ministry of Health and Family Welfare has notified the National Policy on Rare Diseases, 2021.

- Though the document specifies increasing the government support for treating patients with a 'rare disease' - from Rs. 15 lakh to Rs. 20 lakh - caregivers say this doesn't reflect actual costs of treatment.

- According to the policy, rare diseases include genetic diseases, rare cancers, infectious tropical diseases, and degenerative diseases.

- **Centres of Excellence** - The government would notify selected Centres of Excellence at premier government hospitals for comprehensive management of rare diseases.

- These Centres would be provided a one-time grant to a maximum of ₹5 crore each for infrastructure development for screening, tests, treatment.

- **Patient registry of rare diseases** is to be constituted under the Indian Council of Medical Research (ICMR).

- **Categorisation** - A 'rare disease' has been categorised into 3 groups.

  1. **Group 1 diseases** - include osteopetrosis and immune deficiency disorders, among others - would be eligible for a one-time curative treatment cost of up to Rs. 20 lakh.

  2. **Group 2 diseases** require long-term treatment with low cost.

  3. **Group 3 Diseases** require long-term treatments with high cost.

- For Group 1 diseases, Rs. 20 lakh assistance will be provided to the patients with these disease that require a one-time treatment under 'Rashtriya Arogya Nidhi'

- These beneficiaries should conform to definition of Pradhan Mantri Jan Arogya Yojana and were treated in government tertiary care hospital.

- For Group 2 diseases, the States could consider supporting patients of these diseases that can be managed with special diets or hormonal supplements or other relatively low cost interventions.

- For the diseases, such as Hurler Syndrome, Gaucher's disease, that requires annual treatment expenses from Rs 10 lakh to Rs 1 crore, a digital platform is to be set up to raise donations and corporate funding.

- It aims to create **Administrative Committee** that will develop guidelines to determine which rare diseases to fund.

- **Detection** - The policy aims to screen and detect rare diseases at early stages, which will in turn help in their prevention.

- It aims to achieve this through the help of Health and Wellness Centres, District Early Intervention Centres and counselling.

National Programme on High Efficiency Solar PV Modules

- The Union Cabinet has approved the Production Linked Incentive (PLI) Scheme 'National Programme on High Efficiency Solar Photo Voltaic (PV) Modules'.

- This scheme was proposed by the Ministry of New & Renewable Energy for achieving manufacturing capacity of Giga Watt (GW) scale in high efficiency solar PV modules.

- It will reduce import dependence in a strategic sector like electricity. It will also support the Atmanirbhar Bharat initiative.

- Solar PV manufacturers will be selected through a competitive bidding process. PLI will be disbursed for 5 years post commissioning of solar PV manufacturing plants, on sales of high efficiency solar PV modules.

- Manufacturers will be rewarded for higher efficiencies of solar PV modules and for sourcing their material from the domestic market.

- **Benefits expected** - The PLI amount will increase with increased module efficiency and increased local value addition.

- Extra 10,000 MW capacity of integrated solar PV manufacturing plants, direct investment, employment, import substitution, and impetus to R&D and demand of Rs.17,500 Cr over 5 years for 'Balance of Materials'.

e-SANTA

- Electronic Solution for Augmenting NaCSA farmers' Trade in Aquaculture (e-SANTA) web portal will act as an electronic marketplace that provides a platform to connect aqua farmers and the buyers.

- [NaCSA - National Centre for Sustainable Aquaculture]

- e-SANTA will enable the farmers to get a better price and the exporters to directly purchase quality products from the farmers.

- The farmers have the freedom to list their produce and quote their price while the exporters have the freedom to list their requirements and also to choose the products based on their requirements.

- It provides cashless, contactless and paperless electronic trade platform between farmers and exporters.

- The platform is backed by an end to end electronic payment system with NaCSA as an Escrow agent.

- **Benefits** - It will raise income, lifestyle, self-reliance, quality levels, traceability, and provide new options for aqua farmers.

- It will **RAISE** the lives of farmers by - **R**educing Risk; **A**wareness of Products & Markets; **I**ncrease in Income; **S**hielding Against Wrong Practice and **E**ase of Processes.

- It will act as an alternative marketing tool between farmers & buyers, within the country and abroad, by eliminating middlemen.

National Centre for Sustainable Aquaculture

- It was established by the Marine Products Export Development Authority (MPEDA), Ministry of Commerce & Industry in 2007.

- It was established as an outreach organization for uplifting the livelihood of small-scale shrimp farmers.

- NaCSA started grouping these farmers into societies and educated them on better management practices (BMP) for safe and sustainable shrimp farming.

- It trained them to follow cluster approach in shrimp farming.

- It acts as a federation of all the Aquaculture Societies and facilitate formulation of common policies, strategies, etc.,

- It acts as a Central Agency for standardization of inputs in Aquaculture.

Shaphari

- 'Shaphari' is a certification scheme for aquaculture products developed by the Marine Products Exports Development Authority (MPEDA).

- [Shaphari is a Sanksrit word that means superior quality of fishery products suitable for human consumption.]

- The Shaphari scheme, which is based on the United Nations' Food and Agriculture Organization's technical guidelines on aquaculture certification, will have two components,

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1. Certifying hatcheries for the quality of their seeds and,

2. Approving shrimp farms that adopt the requisite good aquaculture practices.

- Those who successfully clear multiple audits of their operations shall be granted a certificate for **two years**.

- The entire certification process will be **online** to minimise human errors and ensure higher credibility and transparency.

- It will bolster confidence in India's frozen shrimp produce, India's biggest seafood export item.

Shrimp Export

- Frozen shrimp is India's largest exported seafood item.

- It constituted 50.58% in quantity and 73.2% in terms of total U.S. dollar earnings from the sector during 2019-20.

- Major shrimp producing States - Andhra Pradesh, West Bengal, Odisha, Gujarat and Tamil Nadu. Around 95% of cultured shrimp is exported.

- **Factors that hurt export** - Container shortages and incidents of seafood consignments being rejected because of food safety concerns like the presence of antibiotic residue.

Register of Indigenous Inhabitants of Nagaland

- Naga Hoho, an apex body of Naga tribes, has asked the Nagaland government not to be hasty with the exercise to prepare the Register of Indigenous Inhabitants of Nagaland (RIIN).

- The RIIN is seen as a variant of Assam's National Register of Citizens.

- **RIIN Committee** - Nagaland government had earlier set a Committee on Inner Line Permit (ILP) which has recommended coming up with a master list which will be known as RIIN.

- A three-member Committee with Banuo Z. Jamir as its head was set up for studying, examining, and recommending and advising on the implementation of RIIN. The committee had been tasked to determine,

    1. Eligibility criteria to be an indigenous inhabitant,

    2. Authority to authenticate claims of being indigenous,

    3. Place of registration as indigenous inhabitant,

    4. Basis of claims of being indigenous, and

    5. Documents that will be acceptable as proof of being indigenous.

- However, the exercise was suspended following protests from community-based and extremist organisations.

- **Objectives** - Launched in 2019, the RIIN exercise has a stated objective of preventing outsiders from obtaining fake indigenous certificates for seeking jobs and benefits of government schemes.

- The RIIN will be the master list of all indigenous inhabitants of the state based on an extensive survey of the village-wise and ward-wise data.

- It would be prepared under the supervision of the district administration. It will be monitored by the Commissioner of Nagaland.

- **Concern** - The Naga Hoho was worried about the consequences if the RIIN implement the identification process with December 1, 1963 as the cut-off date for determining the "permanent residents" of the State.

- [Nagaland attained statehood on December 1, 1963]

- This date is likely to exclude Nagas who have come from beyond the boundaries of Nagaland.

- There is a fear that the non-indigenous Nagas could be treated as "illegal immigrants" and their lands and property confiscated.

Initiatives of National Internet Exchange of India

- Three initiatives for National Internet Exchange of India (NIXI) were launched - IP Guru, NIXI Academy and NIXI-IP-INDEX.

- These initiatives will facilitate adoption of IPv6 and create an environment to ensure smooth transition from IPv4 to IPv6.

- **IPv6 Expert Panel (IP Guru)** contains members from government and private organizations. It would extend support to all the Indian entities who are finding it technically challenging to adopt IPv6.

- It will help in identifying & hiring agency that will help end customer by providing necessary technical support to adopt IPv6.

- It's a joint effort of Department of Telecom (DOT), MeitY & community.

- **NIXI Academy** is created to educate technical/non-technical people in India to learn and relearn technologies like IPv6 which are normally not taught in Educational Institutes.

- It comprises an IPv6 training portal which is developed to provide mass training to the community.

- Successful candidates (after passing examination) can take a certificate from NIXI, which will be useful to find/upgrade jobs in the Industry.

- **NIXI-IP-INDEX** is an IPv6 index portal for the Internet community. It will be populated by the NIXI with web adoption in IPv6, IPv6 traffic etc.

- It will showcase the IPv6 adoption rate in India and across the world.

- It will motivate organisations to adopt IPv6, provide inputs for planning by technical organisations and research by academicians.

Startup India Seed Fund Scheme

- The Startup India Seed Fund Scheme (SISFS) was launched to provide financial assistance to startups for proof of concept, prototype development, product trials, market entry, and commercialization.

- It was announced in the 'Prarambh: StartupIndia International Summit' that marks the five-year anniversary of the Startup India initiative.

- Rs. 945 Crore corpus will be divided over the next 4 years for providing seed funding to eligible startups through eligible incubators across India.

- The SISFS will **S**ecure seed funding, **I**nspire innovation, **Support** transformative ideas, **F**acilitate implementation, and **S**tart startup revolution.

- It will create a robust startup ecosystem, particularly in Tier 2 and Tier 3 towns of India, which are often deprived of adequate funding.

- Online portal created for the scheme by Department for Promotion of Industry and Internal Trade (DPIIT) will allow incubators to apply it.

- Grants of up to Rs 5 Crores shall be provided to the eligible incubators selected by the Experts Advisory Committee (EAC), which has been created by DPIIT to execute and monitor the Fund.

  1. The selected incubators shall provide grants of up to Rs 20 lakhs for validation of Proof of Concept, or prototype development, or product trials to startups.

  2. Investments of up to Rs 50 lakhs shall be provided to the startups for market entry, commercialization, or scaling up through convertible debentures or debt-linked instruments.

Pradhan Mantri Garib Kalyan Anna Yojana

- Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) is announced by the Union Government for the month of May and June 2021.

- PMGKAY is a part of Pradhan Mantri Garib Kalyan Package (PMGKP) to ameliorate the hardships faced by the poor due to Covid-19 situation.

- Under this scheme, it has been decided to allocate an additional quota of free-of-cost food grains at 5 Kg per person per month to nearly 80 Crore beneficiaries covered under National Food Security Act, 2013 (NFSA).

- The additional quota to the already subsidised 5 kg of food grains that is provided through the Public Distribution System (PDS) will be provided to beneficiaries covered under both categories of NFSA,

  1. Antyodaya Anna Yojana (AAY) and

  2. Priority Householders (PHH).

- The Food Corporation of India will provide additional 80 LMT food grains in May and June 2021, under the scheme to respective State/UT Governments, in addition to their regular NFSA allocation.

- This allocation for May and June 2021 would be on the same pattern as the earlier PM-GKAY. The government had announced PMGKAY-I (April-June 2020) and PMGKAY-II (July-November 2020).

RTI on Cyber Crime Volunteers Programme

- A Right to Information Act (RTI) application was filed on the total number of volunteers who have applied under the Cyber Crime Volunteers Program of the National Cyber Crime Reporting Portal.

- In the RTI reply, the Ministry of Home Affairs said that it does not maintain a centralised list of volunteers enrolled under the program.

- It said that the "police" and "public order" were State subjects as per the Seventh Schedule of the Constitution. So, the information could be sought directly from the respective States and Union Territories.

- It said that the States were primarily responsible for the prevention, detection, investigation and prosecution of crimes through their law enforcement agencies (LEAs).

Cyber Crime Volunteers Program

- The Ministry of Home Affairs, through its National Cyber Crime Reporting Portal aims to raise a group of "cybercrime volunteers" to flag unlawful content on the Internet.

- The Cyber Crime Volunteers Program is a constituent of the National Cyber Crime Ecosystem Management Unit, which is part of the Indian Cyber Crime Coordination Centre (I4C) scheme launched in 2020.

- The Volunteers Program brings together citizens with passion to fight against cybercrime in the country on a single platform and assist State/UT LEAs in their endeavour to curb cybercrimes.

- The volunteers are registered under one of three categories:
    1. Cyber Volunteer Unlawful Content Flagger,
    2. Cyber Awareness Promoter, and
    3. Cyber Expert.

- According to the Ministry's Output Outcome Monitoring Framework budget of 2021-22, the programme was expected to include 500 volunteers, 200 cyber awareness promoters and 50 cyber experts.

> **Unlawful Content -** In general, content that violates any law in force in India. Such content may fall under following broad categories:
>
> - Against defence, sovereignty and integrity of India,
> - Against Security of the State,
> - Against friendly relations with foreign States,
> - Content aimed at disturbing Public Order,
> - Disturbing communal harmony,
> - Child Sex Abuse material.

- The Internet Freedom Foundation (IFF) has said the programme enables a culture of surveillance and could create potential social distrust by encouraging civilians to report the online activities of other citizens.

14.   BILATERAL RELATIONS

Supply Chain Resilience Initiative

- The Supply Chain Resilience Initiative (SCRI) was formally launched in a Trilateral Ministerial Meeting between India, Japan and Australia.

- The SCRI aims to create a virtuous cycle of enhancing supply chain resilience with a view to eventually attaining strong, sustainable, balanced and inclusive growth in the region.

- Possible policy measures to strengthen supply chains may include,
    1. Supporting the enhanced utilization of digital technology; and
    2. Supporting trade and investment diversification.

- The following would be implemented as initial projects of SCRI,

1. Sharing of best practices on supply chain resilience; and

2. Holding investment promotion events and buyer-seller matching events to provide opportunities for stakeholders to explore the possibility of diversification of their supply chains.

- The expansion of the SCRI may be considered based on consensus, if needed, in due course.

- To quickly take forward the initiative, the Ministers may convene the Trilateral Ministerial Meeting, once in four months.

- To know more about the Supply Chain Resilience Initiative, click here.

Indo-French Agreement on Gaganyaan Mission

- Space agencies of India (Indian Space Research Organisation) and France (National Centre for Space Studies - CNES) signed an agreement for cooperation for India's first human space mission Gaganyaan.

- CNES will train India's flight physicians and CAPCOM mission control teams in France at the CADMOS centre at CNES in Toulouse and the European Astronaut Centre (EAC) in Cologne, Germany.

- The agreement provides for the CNES to support implementation of a scientific experiment plan on validation missions, exchange information on food packaging and the nutrition programme.

- There will be help on the use by Indian astronauts of French equipment, consumables and medical instruments.

- French equipment developed by CNES, operating at the International Space Station (ISS) will be made available to Indian crews.

- The CNES will also be supplying fireproof carry bags made in France to shield equipment from shocks and radiation.

Currency Practices Monitoring List

- The United States of America placed 11 countries in its Currency Practices Monitoring List or Currency Manipulators Watch List.

- Countries in the List are India, China, Japan, South Korea, Germany, Italy, Ireland, Malaysia, Singapore, Thailand and Mexico.

- As directed by the US Congress, Department of Treasury has established a monitoring list of major trading partners that merit close attention to their currency practices and macroeconomic policies.

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

  1. High bilateral trade surplus with the US - at least USD 20 billion over a 12-month period.

  2. A material current account surplus equivalent to at least 2% of Gross Domestic Product (GDP) over a 12-month period.

  3. Persistent, one-sided intervention - when net purchases of foreign currency totalling at least 2% of the country's GDP over a 12 month period are conducted repeatedly, in at least six out of 12 months.

- Countries that meet all three of the criteria are labeled as currency manipulators by the Treasury.

- Treasury will add on the List any major US trading partner that accounts for a large and disproportionate share of the overall US trade deficit even if that economy has not met two of the three criteria from the 2015 Act.

E9 Initiative

- Meeting of Education Ministers of E9 countries on 'E9 initiative: Scaling up digital learning to accelerate progress towards SDG4' was held.

Indian Initiatives

- One Nation-One Digital Platform - DIKSHA.

- One Nation-One Channel programme - SWAYAM PRABHA, SWAYAM MOOCS and radio broadcasting.

- PM e-VIDYA - To provide multi-modal access to education to school-going children across India.

- E9 meeting is the first of a 3-phased process to co-create an initiative on digital learning and skills, targeting marginalised children and youth.

- E9 initiative aims to accelerate recovery and advance the SDG 4 agenda by driving rapid change in education systems in three of the 2020 Global Education Meeting priorities,

    a) Support to teachers;

    b) Investment in skills;

    c) Narrowing of the digital divide.

- It is spearheaded by the United Nations, the E9 countries - Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria and Pakistan.

India-China Border Dispute

- During the discussions between India and China to resolve the over 11-month long standoff in eastern Ladakh China has refused to vacate from two of the four original friction points.

- The two points are Patrolling Point 15 (PP15) in Hot Springs, and PP17A near Gogra Post in the Line of Actual Control (LAC) in eastern Ladakh.

- Previously, the other points of friction were PP14 in Galwan Valley and the north bank of Pangong Tso.

- **Patrolling Points** are certain locations along the LAC where the Indian Army troops patrol the area to assert their control over the territory.

- They are decided by the China Study Group (CSG). CSG was set-up in 1976, and is the apex decision-making body on China.

- Both PP15 and PP17A are in an area where India and China largely agree on the alignment of the LAC.

PP15 and PP17A

- PP15 and PP17A are among the 65 Patrolling Points in Ladakh.

- While Hot Springs is north of the River Chang Chenmo in the Galwan sub-sector, Gogra Post is east of the point where the river takes a hairpin bend coming southeast from Galwan Valley and turning southwest.

- The area is north of the Karakoram Range of mountains, which lies north of the Pangong Tso lake, and south east of Galwan Valley.

- The area lies close to Kongka Pass, one of the main passes, which China claims to marks the boundary between India and China.

- India's claim of the international boundary lies significantly east, as it includes the entire Aksai Chin area as well.

- LAC comes southeast from Galwan Valley, turns down at Konga La and moves towards Ann Pass before reaching the north bank of Pangong Tso.

Indo-German Agreement on Marine Litter

- Indian Ministry of Housing and Urban Affairs (MoHUA) and German Environment Ministry's Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH India signed an agreement.

- **[Marine Litter** is estimated that 15-20% of all plastics are entering oceans via riverine ecosystems of which 90% are contributed by 10 of the world's most polluting rivers, which includes Ganga and Brahmaputra.]

- This Indo-German agreement on Technical Cooperation is titled 'Cities Combating Plastic Entering the Marine Environment'.

- This project is envisaged under the contours of the Joint Declaration of Intent regarding cooperation in the field of 'Prevention of Marine Litter' signed between India and Germany in 2019.

- **Project's aim** is to enhance practices to prevent plastic entering the marine environment.

- This will improve segregation, transportation, treatment and disposal of waste in municipalities, thereby establishing an efficient system, which will ensure that no plastic waste finds its way into rivers or oceans.

- This will be combined with data management and reporting systems, civil society involvement and increased cooperation with recyclers and the recycling industry through a digital platform.

- It will also improve handling of port and marine waste.

- It will be undertaken at the national level (at MoHUA), select states (Uttar Pradesh, Kerala and Andaman & Nicobar Islands) and in the cities of Kanpur, Kochi and Port Blair for three and a half years.

- It will support the Swachh Bharat Mission-Urban's implementation with special focus on preventing plastic litter entering the rivers and water bodies at source.

Letter Warning Civil War in France

- A letter signed by about 1,000 service personnel in France, including some retired generals warning President Emmanuel Macron that the country is heading for a "civil war", has angered the French government.

- The signatories through the controversial letter had,

    1. Warned Macron, his government and legislators of "several deadly dangers" that threaten France, such as Islamism.

    2. Criticises the government crackdown on the Yellow Vest protests and also its policies.

- The government said that those signatories who are still serving the military would be punished under a law dictating that military personnel have to be politically neutral.

- It warned that for any of the signatories who have violated the duty of reserve, sanctions are planned.

- **Timing of the letter** is significant as it was released on the anniversary of a 1963 failed rebellion against former French President General de Gaulle.

- The coup plot was engineered by generals who wanted to keep Algeria, then a French colony, from gaining independence.

15.   ECONOMY

Lockdown Generation

- The International Labour Organization (ILO) termed the current young population as the 'lockdown generation' citing the massive impacts of the pandemic on them.

- The lockdown generation emerged, as young people constitute major victims of social and economic consequences of the pandemic, and there is a risk that they will be scarred throughout their working lives.

- According to ILO and various other estimates, during the pandemic,

    1. Some 90% of young people have reported increased mental anxiety,

    2. One in six young people worldwide have lost their jobs.

Countercyclical Capital Buffer

- Based on the review and empirical testing of Countercyclical Capital Buffer (CCyB) indicators, the Reserve Bank of India (RBI) says it is not necessary to activate CCyB at this point in time.

- The framework on CCyB was put in place by the RBI in terms of guidelines issued in 2015.

- The 2015 guidelines advised that the CCyB would be activated as and when the circumstances warranted, and the decision to activate CCyB would normally be pre-announced.

Capital Buffer

- Capital buffers are mandatory capital that financial institutions are required to hold in addition to other minimum capital requirements. They are put in place by regulators.

- Regulations targeting the creation of adequate capital buffers are designed to reduce the procyclical nature of lending by promoting the creation of Countercyclical Capital Buffers (CCyB).

- Both capital Buffers and CCyBs were set forth under the Basel III regulatory reforms created by Basel Committee on Banking Supervision.

- The framework envisages the credit-to-GDP gap as the main indicator.

- This main indicator may be used in conjunction with other supplementary indicators like Credit-to-Deposit Ratio, Industrial Outlook Assessment Survey, Interest Coverage Ratio, and Asset Quality.

- The aim of the CCyB regime is twofold,

   1. It needs banks to build up a capital buffer in good times which may be used to maintain credit flow to the real sector in hard times.

   2. It achieves the goal of restricting the banking sector from indiscriminate lending in the periods of excess credit growth that have been associated with the building up of system-wide risk.

Retail G-Sec

- The Reserve Bank of India (RBI) allowed retail investors to participate in the government securities (G-Sec) market through 'Retail Direct', an online portal for trading.

- This is a key structural reform since India is only the third country, after the US and Brazil, in enacting such a provision.

- [The RBI has been allowing small investors to participate in G-Sec market since 2001.]

- Through the proposed initiative, the RBI is going to auction long-term dated securities (G-Secs, State Development Loans) and short-term instruments (Treasury Bills) to retail investors.

- The main objectives of the government are:

   a) To provide retail investors a digital avenue for their financial savings;

   b) To meet its mammoth borrowing programme of ₹12 lakh crore in order to bridge its burgeoning fiscal deficit, and

   c) To broaden and deepen the investors' base for better price discovery in the G-Sec market.

- G-Secs/SDLs usually fare better in terms of safety, and offer higher yields than fixed deposits (FDs) in banks, but they provide lower after-tax returns compared to other small savings instruments.

- Retail investors can easily invest in G-Secs in the primary market, but it may not be that easy to sell (before maturity) in the secondary market since these securities need to be liquidated at prevailing market prices.

- Digital financial inclusion can be a reality when the proposed G-Secs are made accessible to all eligible investors, including foreign investors.

Credit Guarantee Scheme for Subordinate Debt

- Credit Guarantee Scheme for Subordinate Debt (CGSSD) has been extended up to September 30, 2021.

- It was launched by the Ministry of Ministry of Micro, Small and Medium Enterprises (MSME) in 2020 to provide financial facility to stressed MSMEs, under the AtmaNirbhar Bharat Package.

- It extends support to the promoters of the MSMEs with Special Mention Accounts-2 (SMA-2) and NPA accounts which are stressed and have become NPA as on April 30, 2020.

- The eligible accounts for restructuring are selected as per RBI guidelines on the books of the lending institutions.

- The promoters of the MSME unit will be given credit equal to 15% of stake in the company or Rs 75 lakh, whichever is lower.

- Fraud/wilful defaulter accounts won't be considered under the scheme.

Special Mention Accounts

- The classification of SMA was introduced by the RBI in 2014, to identify those accounts that may become an NPA/Stressed Asset.

- They are those assets/accounts that shows symptoms of bad asset quality in the first 90 days itself or before it being identified as NPA.

- Types of Special Mention Accounts (categorized in terms of duration)

   a) SMA-NF - Non-financial indications about stress of an asset.

   b) SMA-0 accounts in which loan repayments are wholly or partly overdue for a period of up to 30 days.

   c) SMA-1 - Principal or interest payment overdue for 31-60 days.

   d) SMA-2 - Principal or interest payment overdue for 61-90 days.

Ghaziabad Green Municipal Bonds

- Ghaziabad Nagar Nigam (GNN) or Ghaziabad Municipal Corporation, a civic body in Uttar Pradesh, has successfully listed India's first-ever Green Municipal bond issue on the Bombay Stock Exchange (BSE).

- It has raised Rs. 150 crore by issuing this bond at a coupon rate of 8.10% with over-subscription (One of the lowest in municipal bonds in India).

- The Urban Development Ministry has provided a 2% interest subvention, which means effectively Ghaziabad has raised funds at 6%.

- The funds will be utilised for an environmentally sustainable projects,

  a) Tertiary water treatment plant to benefit industries in Ghaziabad,

  b) Supply piped water through water-meters to places like Sahibabad.

- According to India Ratings, Ghaziabad bond is debt-free and has maintained a revenue surplus position in the last few years.

- **Other Cities** - Apart from Ghaziabad, municipal bonds have been raised by 9 cities - Ahmedabad, Surat, Visakhapatnam, Amravati, Indore, Bhopal, Pune, Hyderabad and Lucknow.

International Monetary and Financial Committee

- Indian Minister for Finance & Corporate Affairs attended the Plenary Meeting of the International Monetary and Financial Committee (IMFC) of the International Monetary Fund's (IMF's) Board of Governors.

- IMFC usually meets twice a year at the Fund-Bank Spring Meetings (April), and the Annual Meetings (October).

- **Chairperson** - Magdalena Andersson, Sweden's Finance Minister (The first woman to hold this position). Holds office for 3 years.

- **Members** - IMFC has 24 members who are central bank governors, ministers, or others of comparable rank. These members are drawn from the governors of the 190 member countries of the IMF.

- Each member country and each group of member countries that elects an Executive Director appoints a member of the IMFC.

- **Role** - It discusses matters of common concern affecting the global economy and advises the IMF on the direction of its work and policies.

- It advises and reports to the IMF Board of Governors on the supervision and management of the international monetary and financial system.

- It considers proposals by the Executive Board to amend the Articles of Agreement and advises on matters referred to it by Board of Governors.

- **Observers in the IMFC's meetings** - International institutions.

Britcoin

- The Bank of England and the Treasury will work together to assess the benefits of creating a new Central Bank Digital Currency (CBDC) called "Britcoin", at a time when cash payments are generally on the decline.

- If the new currency comes to pass, it would be a new form of digital money for use by households and businesses and would exist alongside cash and bank deposits, rather than replacing them.

- The vision of this coin is to have a more open, greener, and more technologically advanced financial services sector.

Central Bank Digital Currency

- A CBDC uses an electronic record or digital token to represent the virtual form of a fiat currency of a particular nation (or region).

- It is centralized; it is issued and regulated by the competent monetary authority of the country.

- These digital currencies are different in a key sense to Bitcoin as they are issued by state authorities.

- Currently, only the Bahamas has such a currency, though China is trialing it in several cities.

- Sweden could have its own digital currency by 2026, while the European Central Bank could have an electronic euro created within four years.

Digital Currency

- Digital currency, also known as digital money, electronic money, electronic currency or cyber cash, is a form of currency that is available only in digital or electronic form, and not in physical form.

- They are already being explored or even implemented in several other countries, with many proponents drawing inspiration from the success of Bitcoin and other so-called cryptocurrencies.

- All cryptocurrencies are digital currencies, but not all digital currencies are cryptocurrencies.

- **Benefits of a digital currency** - Backup to card payments if cash payments continue to drop in the years to come.

- [By the end of this decade, only one in 10 payments in the U.K. are expected to be made with traditional paper money.]

- They can provide another way for people to make purchases online.

Changes in NPS Rules

- The National Pension System (NPS) will no longer compel investors to convert 40% of their accumulated retirement corpus into an annuity.

- [NPS is subscribed by employees of Govt. of India, State Governments and by employees of private institutions/organizations & unorganized sectors.]

- This decision is taken as poor yields on annuities and high inflation are translated into negative returns, the Pension Fund Regulatory and Development Authority (PFRDA) Chairman said.

- Amendments would be made to PFRDA Act, 2013 to allow NPS members with a balance over Rs. 5 lakh to retain 40% of the corpus in the NPS or wind it down through a system akin to a systematic withdrawal plan.

Positive returns

Excerpts from the reforms announced for subscribers:

- Soon, NPS savings upto ₹5 lakh can be withdrawn entirely at retirement
- For those with higher savings, the mandate to annuitise 40% of the corpus is being reviewed
- Members can opt to retain 40% of the corpus in NPS and withdraw over 15 years
- Decisions taken as low annuity rates and high inflation translated into negative returns for pensioners
- First Guaranteed Return plan expected this year

Pension Fund Regulatory and Development Authority

- PFRDA is a statutory body established by the Pension Fund Regulatory & Development Authority Act, 2013.

- It promotes and develops an organized pension system to serve the old age income needs of people on a sustainable basis by developing and regulating pension funds. It regulates the pension industry.

- It regulates the National Pension System (NPS), and also administers the Atal Pension Yojana.

- It performs the function of appointing various intermediate agencies like Pension Fund Managers, Central Record Keeping Agency (CRA) etc.

Insolvency and Bankruptcy Code Ordinance, 2021

- The President promulgated the Insolvency and Bankruptcy Code (Amendment) Ordinance, 2021.

- The Cabinet had approved the proposal to make amendments in the Insolvency and Bankruptcy Code, 2016, through the Insolvency and Bankruptcy Code (Amendment) Ordinance, 2021.

- The amendments aims to provide a Pre-Packaged alternative insolvency resolution framework for corporate persons - Classified as micro, small and medium enterprises (MSMEs) under the Code.

- The initiative is based on a **trust model** and the amendments honour the honest MSME owners by ensuring that the resolution happens and the company remains with them.

- The Ordinance seeks to amend the Code based on suggestions of the Insolvency Law Committee (ILC).

- Expected benefits of the amendment in Code

   a) Lesser burden on Adjudicating Authority,

   b) Assured continuity of business operations for Corporate Debtor (CD),

   c) Less process costs & maximum assets realization for financial creditors (FC),

d) Assurance of continued business relation with CD and

e) Rights protection for operational Creditors (OC).

Compensation of Mutual Fund Managers

- The Securities and Exchange Board of India (SEBI) has notified some changes to the rules of the compensation of mutual fund (MF) managers and other key personnel in an asset management company (AMC).

- **Key personnel** - The likes of chief executive officer, chief investment officer, research head and their direct reportees.

- **Minimum 20%** of the compensation to these key personnel should be in the form of units of the MF schemes they manage i.e. compensation is linked to performance.

- The SEBI has specified the rules of allocation of this 20% by saying that it should be proportional to the assets under management of the schemes in which an employee has a role or oversight.

- It has also specified that these units offered by way of compensation are locked-in for three years.

- **Benefits** - It will boost the transparency and accountability of compensation. It will ensure that fund houses actually link the pay of fund managers to performance.

- Besides, since many employees' compensation is linked to how well a MF is doing, it could encourage whistleblowing.

- It will give psychological comfort to investors that their fund manager has skin in the game.

16.   ENVIRONMENT

Biodiversity Heritage Site

- Maharashtra government declared an area at Amboli in Western ghats in Sindhudurg district as a Biodiversity Heritage Site (BHS).

- BHS are areas that are unique, ecologically fragile ecosystems - terrestrial, coastal, and inland and marine waters - having rich biodiversity.

- The biodiversity comprises of any one or more of the components like,

    a) Species richness - Wild and domesticated species or intra-specific categories,

    b) High endemism,

    c) Presence of rare, endemic and threatened species, keystone species, species of evolutionary significance,

    d) Presence of wild ancestors of domestic/cultivated species or land races or their varieties,

    e) Past pre-eminence of biological components represented by fossil beds and having cultural or aesthetic values.

    f) Area with significant cultural, ethical or aesthetic values; important for the maintenance of cultural diversity

- As per the Section 37 of the Biological Diversity Act, 2002,

    a) State Governments can notify in the official gazette, in consultation with 'local bodies', areas of biodiversity importance as BHS.

Schistura hiranyakeshi

- It is a new small freshwater fish species discovered near Amboli in Sawantwadi tehsil of Sindhudurg district.

- It is a rare sub-species of Schistura, a freshwater loach.

- Named after the Hiranyakeshi River near Amboli village, this fish is a colourful fish that lives in water and streams in an abundance of oxygen.

- It was important to conserve this species as it might face extinction due to fishing activities.

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b) State Government in consultation with the Central Government may frame rules for the management and conservation of BHS.

c) State Governments can frame schemes for compensating or rehabilitating anyone economically affected by such notification.

- State Biodiversity Boards (SBB) may invite suggestions for declaration of BHSs, through the Biodiversity Management Committees (BMCs) and other relevant community institutions.

New Emission Norms for Thermal Power Plants

- India has pushed back deadlines for coal-fired power plants to adopt new emission norms by up to 3 years and allowed utilities that miss the new target to continue operating after paying a penalty.
- Previously, the Environment Ministry has ordered that the deadline for these plants to install Flue Gas Desulphurization (FGD) units, it includes
    a) Plants near populous regions and New Delhi will have to comply by 2022,
    b) Utilities in less polluting area shave up to 2025 to comply or retire units.
- A task force will be constituted by the Central Pollution Control Board to categorise plants in three categories on the basis of their location to comply with the emission norms.
- In case of non-compliance, a penalty of up to Rs. 0.20 will be levied for every unit of electricity produced.
- Thermal power companies produce 3/4th of the country's electricity.
- They account for 80% of industrial emissions of particulate matter, sulphur- and nitrous-oxides - Causes lung diseases, acid rain and smog.

Uttarakhand Forest Fires

- The Centre has provided two MI-17 helicopters to Uttarakhand State for fire-fighting - each deployed in Kumaon and Garhwal regions.
- Uttarakhand has 38,000 sq. km. of forests (71% of its geographical area).
- 'Forest fire season' begins in mid-February continues till mid-June in the summer. Peak time is 3rd week of May when temperature is highest.
- In hilly areas, the surface gets drier faster than plains due to lower accumulation of rainwater.
- **Causes of forest fires** - Fuel load (Quantity of dry leaves), oxygen, temperature, deliberate fires by locals, friction of electricity cables with fuel load, carelessness, farming-related activities and natural reasons.
- Setting forest on fire is a punishable offence under Indian Penal Code.
- **Preventive measures** - Van Panchayats should be given rights and incentives for protecting the forests.
- The Forest Act of 1988 dissociates the local community with the forests and, in the absence of a sense of belonging, local community villagers do not initiate dousing fires on their own.
- Waterholes should be developed across the mountains to recharge groundwater and maintain moisture in the soil.
- Awareness should be given through programs to motivate locals to protect forests from fire because they act as first responder.

Study on Tropical Cyclones

- Tropical Cyclone is the combined name used for the three cyclonic storms - cyclones, hurricanes and typhoons.
- They are named differently based on which ocean they form in. They are created by warm ocean waters.
- A new joint study has said that the intensity of tropical cyclones might increase in the next century due to global warming.

- If the world warmed by 2° C by 2100, cyclonic wind speeds can peak at more than 300 kms per hour, it could increase up to a maximum of 5%.

- Rising sea water levels will intensify the destructive impact of the cyclones due to increased storm surges which flood coastal areas bringing in sea-water that decreases soil fertility.

- Amount of rainfall carried by the storms might increase by an average of 14% due to the warming-fuelled increase in moisture in the atmosphere.

- Rapid intensification happens when there is an increase of maximum sustained winds of a cyclone by at least 55 kms/ hour within 24 hours.

- Stronger storms might occur in areas closer to the North and South Poles - this means that seas in these regions are becoming warmer.

- **North Atlantic Ocean** - The impact of climate change on cyclones was especially visible here, as it experienced numerous intense hurricanes.

- **North Pacific Ocean** - Intensity of tropical cyclones making landfall along the coasts of eastern and south eastern Asia from 1977-2014 had increased by 12-15%.

- **Indian Ocean region** - The chances of low pressure areas on the sea surface that may transform into cyclones have increased in Arabian Sea. This happened due to decrease in vertical wind shear in the Arabian Sea.

- [Vertical wind shears are localised winds around a cyclone in the vertical direction. When they are strong, they usually destabilise a cyclone and make it less intense.]

- In the Bay of Bengal, the number of cyclones growing to become severe cyclones had increased. This had happened because of low level cyclonic vorticity which intensified cyclones.

Study on Invasive Species

- A study says that the "exotic" intruders have a vast and growing cost to humanity and the environment.

- It estimated that the invasive species have cost nearly $1.3 trillion dollars to the global economy since 1970, an average of $26.8 billion per year.

- There is also sign of a steady upward trend since 1970.

- Most of the price tag is associated with the damage to ecosystems, crops or fisheries, though pest-control measures were included in the research.

- A preliminary roundup of the top ten invasive pests includes
    1. Crop-eating rats,
    2. Asian gypsy moth attacking trees throughout the northern hemisphere,
    3. Tiger mosquito, native to Southeast Asia, carrying diseases like chikungunya, dengue and zika.

- The UN's Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has said invasive species are among the top five human-driven culprits of environmental destruction worldwide.

- [Other 4 culprits - Land use, resource exploitation, pollution and climate change.]

- In 2019, IPBES estimated there had been a 70% increase in invasive species since 1970, in the 21 countries studied.

> **Invasive Species in History**
> - Australia - Feral European rabbits (early 1800s). In 1950, the government killed the rabbits by releasing the disease myxomatosis.
> - Guam - The brown tree snake has eaten nearly all of the native birds and lizards of since it was accidentally introduced in the mid-20th century from its South Pacific habitat.
> - North America's Great Lakes - Zebra Mussel (1980s and 90s) originating in the waterways of the former Soviet Union.
> - American and European forests - Devastated by Asian long-horned beetle
> - Hawaii - Puerto Rican coqui frog with no natural predators

Shrinking Marine Life Richness

- A study by the National Academy of Sciences has found a strong correlation between marine species decline and rising temperature - Fish species diversity tended to either plateau or decline at or above 20°C.

- **Threats to marine life** - Overfishing and pollution, the warming of waters due to climate change have impacted tropical species.

- Globally, the total number of open-water species declined by about half in the 40 years up to 2010 in tropical marine zones. During that time, sea surface temperatures in the tropics rose 0.2°C.

- The total number of species attached to the seafloor remained somewhat stable in the tropics between the 1970s and 2010.

- Climate change is already impacting marine species diversity distribution, with changes being more dramatic in the Northern Hemisphere where waters have warmed faster.

- Some were also found beyond the tropics, suggesting they had expanded their ranges. Species that can move are moving. But, for fixed species like corals, moving is not an option.

Hydrogen - Fuel of the Future

- Hydrogen, the most abundant element in the universe, was used as a fuel in Apollo I that landed on the moon in 1969.

- Hydrogen provides three times more energy than fossil fuels. It is the ultimate green fuel that releases pure water as the only by-product.

- It is one of the leading options for storing energy from renewable as it may be the lowest-cost option for storing electricity over days or even months.

- **Shift** - Countries want to replace fossil fuels with renewable sources to isolate green hydrogen. This shift is happening as,

    1. Fossil fuels can no longer be used to meet the world's energy needs.

    2. Natural abundance of hydrogen means it has the potential to level competition in the automotive sector, whereas the supply of raw materials for EV batteries is controlled by a few large players.

- **Challenges** - Availability of cheap fossil fuel meant hydrogen energy never really picked up.

- Hydrogen does not occur naturally as a gas on the Earth (Always occurs combined with other elements such as water).

- This is because an external energy source is required to isolate hydrogen.

- Currently, fossil fuels are used to isolate hydrogen almost. This is called grey hydrogen and it is as polluting as fossil fuel.

- TERI says that the current cost of green hydrogen production is $5-6/kg, which is almost thrice the cost of grey hydrogen.

Findings

- **International Renewable Energy Agency (IRENA)** suggests that the share of hydrogen in the 2050s energy mix should reach to 12% from almost zero right now.

- It says 66% of the hydrogen to be used in 2050 needs to be green - produced from water as compared to natural gas.

- **IRENA's World Energy Transitions Outlook Report** - Around 120 tonnes of hydrogen are produced annually and less than 1% is green hydrogen.

Green Hydrogen Catapult Initiative

- In 2020, a consortium of seven biggest global green hydrogen project developers launched the Green Hydrogen Catapult Initiative to increase the production of green hydrogen 50-fold in the next six years.

- The initiative aims to cut the cost of green hydrogen to less than $2/kg, which is a potential tipping point that will make it competitive in multiple sectors including steel, power generation, shipping, etc.

- It will ramp up the annual green hydrogen production to 25GW by 2026.

Indian Initiatives

- India reiterated its commitment to green hydrogen by launching the Hydrogen Energy Mission through the Union budget 2021.

- It has earmarked Rs 1,500 crore for the mission and the Indian Renewable Energy Development Agency though details are awaited.

- The public sector undertaking NTPC is working on pilot hydrogen buses between Delhi and Jaipur and in Leh.

- It is also planning to set up a 100 MW floating solar plant at its power plant in Ramagundam, Telangana to produce green hydrogen.

- NTPC Energy Technology Research Alliance and Bhabha Atomic Research Centre are working to develop solid oxide steam electrolysers that will be 25% more efficient than existing alkaline electrolysers.

- The element has to be compressed and stored at high pressures as it is very light and escapes easily.

- So, NTPC is experimenting with metal hydrides, which require 10 times less energy to compress hydrogen than any current technology, for compressing hydrogen.

- The company is also trying to tap seawater for producing hydrogen.

  1. It has set up a 0.12 million-litres capacity flue gas-based desalination plant at its Simhadri plant in Andhra Pradesh.

  2. Another plant of the same capacity is running at NTPC's Vallur plant in Tamil Nadu, which is based on solar thermal energy.

Artificial Islands

- A report by the National Aeronautics and Space Administration (NASA) showed that the Maldives government is developing at least three artificial islands to tide over the rising sea-levels due to climate change.

- Maldives is one of the world's most low-lying terrains. About 80% of the archipelago's coral islands are at less than 1 metre above sea level.

- **Hulhumale** is an artificial island located to the northeast of Male.

- The government had started constructing Hulhumale in 1997 Hulhumale on a lagoon off Male to accommodate the capital's population swell.

- It was created by pumping out sand from the seafloor onto a submerged coral platform and is now Maldives's fourth-largest island.

- Since the 1990s, the government has expanded at least two other coral atolls - **Thilafushi and Gulhifalhuea** - through land reclamation.

- They are currently being used as industrial areas or landfills.

- The coral atolls have natural properties to resist sea-level rise. Most of the reefs have remained stable or even grown larger in recent decades.

> **Other Findings**
>
> - US Geological Survey study 2018 - The low-lying islands will become uninhabitable by 2050 due to flooding and scarcity of freshwater.
>
> - Intergovernmental Panel on Climate Change - Sea-level will rise half a metre by 2100 if greenhouse gas emissions are drastically reduced, or by 1 m if they continue to rise.

Area under Summer Crops

- For the second successive year, as a result of efforts of the States and the Central government, along with the hard work of the farmers, the area under summer crops has shown an increasing trend in the country.

- The total summer crop area has increased to 73.76 lakh hectares from 60.67 lakh hectares a year ago during the corresponding period.

  1. **Pulses** area has increased nearly a 100%. It has been reported mainly in Tamil Nadu, Madhya Pradesh, West Bengal, UP, Gujarat, Bihar, Chhattisgarh, Maharashtra, Karnataka, etc.

2. **Oilseeds** area increased around 16% in West Bengal, Karnataka, Gujarat, Maharashtra, Uttar Pradesh, Tamil Nadu, Andhra Pradesh, Chhattisgarh etc.

3. **Rice** has increased around 16%. Summer rice has been reported from West Bengal, Telangana, Karnataka, Assam, Andhra Pradesh, Odisha, Chhattisgarh, Tamil Nadu, Bihar, etc.

- The Ministry of Agriculture and Farmers Welfare has taken new initiatives for the scientific cultivation of summer crops.

- Scientific practices include seed drill/zero till after treating the seeds, high yielding varieties, post-harvest value addition technologies for higher productivity and economic gains.

- For technical support, close coordination between State Agricluture Universities (SAUs) and Krishi Vigyan Kendras (KVKs) was ensured.

Summer Crops

- The Zaid or summer season is a short season between the rabi and kharif seasons. It takes some months of summer and some of rainy season.

- The crops grown during this season is known as zaid crops or summer crops. They grow in period mainly from March to June.

- They require warm dry weather as major growth period and longer day length for flowering. These crops also mature early.

- **Crops** - Watermelon, muskmelon, cucumber, vegetables and fodder crops.

- It also includes pulses, coarse cereals, Nutri-cereals and oilseeds.

- **Benefits** - Summer crops provide extra income, create employment opportunities, improve soil health (particularly through the pulses crop).

Reduced Cropping Intensity in Winter

- A new paper noted that with severe groundwater depletion, the cropping intensity or the amount of land planted in the winter season may decrease by up to 20% by 2025.

- Some of the important winter crops are wheat, barley, mustard and peas.

- The team studied India's three main irrigation types on winter cropped areas: dug wells, tube wells, canals, and also analysed the groundwater data from the Central Ground Water Board.

- They found that 13% of the villages in which farmers plant a winter crop are located in critically water-depleted regions.

- These villages may lose 68% of their cropped area in future if access to all groundwater irrigation is lost. The results suggest that these losses will largely occur in northwest and central India.

- **Problems** wheat farmers in our country face are first-generation (productivity) and second-generation (sustainability) problems.

- In green revolution era, policy-supported intensive agriculture led to an increase in rice cultivation in northwestern India mainly in Punjab and Haryana which are ecologically less suitable for rice cultivation.

- This led to unsustainable groundwater use for irrigation and in turn groundwater scarcity.

- There was also post-harvest residue burning to make way for the timely sowing of wheat.

- Due to lack of enough irrigation infrastructure in eastern states like Bihar, farmers are not able to make use of the enough groundwater resources that are available there supported with monsoon rainfall.

- **Solutions** - Alternative irrigation sources like Canal irrigation, adoption of water-saving technologies like drip irrigation and, switching to less water-intensive crops could be solutions to falling groundwater tables.

- To release some pressure from north-western states, better policies in eastern India are needed to expand the irrigation and thus increase agriculture productivity.

SPECIES IN NEWS

Culex Mosquito

- With the change in season and rise in temperature, culex or common house mosquitoes have made reappearance across Delhi.

- Unlike Aedes aegypti mosquitoes, which spread dengue and chikungunya and breed in clean water, culex mosquitoes breed in unclean stagnant water.

- Culex mosquitoes are known as carriers or vectors of diseases such as Japanese encephalitis, West Nile Virus and Lymphatic filariasis.

- They bite by detecting body heat and carbon dioxide that humans exhale.

Bar Headed Goose

- The Bar Headed Goose (*Anser indicus*) are wintering at the freshwater lake Hadinaru (which takes its name after a village near Mysuru).

- Origin - Central China and Mongolia (Breeding happens here)

- They can fly at very high altitude. They make the world's highest bird migration.

- They return to their homes by crossing the Himalayan ranges.

- [April marks the return of migratory bird species visiting India, back to their breeding grounds.]

- IUCN Red List Status - Least Concern

Three-banded Rosefinch

- Three-banded rosefinch of Arunachal Pradesh has been added as the 1,340th species in the bird list of India.

- It was spotted by the Bombay Natural History Society (BNHS) team at Sela pass (on the border between Tawang and West Kameng districts of Arunachal Pradesh.)

- Three-banded rosefinch belongs to the family Fringillidae, which are seed-eating passerine birds with a distinctively conical bill.

- This bird is a resident of southern China and a vagrant in Bhutan.

- It may be using the high altitude temperate coniferous forest of Arunachal Pradesh as a passage while migrating from China to Bhutan.

- IUCN conservation status - 'Least Concern'

Indus and Ganges River Dolphins

- A new study has shown that the detailed analysis of South Asian river dolphins has revealed that the Indus and Ganges River dolphins are two separate species.

- Currently, they are classified as two subspecies under Platanista gangetica.

- The study estimates that Indus and Ganges river dolphins may have diverged around 550,000 years ago.

- The Indus and Ganges River dolphins are both classified as 'Endangered' species by the International Union for Conservation of Nature (IUCN).

- **Threats** - Physical barriers such as dams and barrages across the river reduced the gene flow; declining river flow; accidental catches; accidental injury due to the use of mechanised boats; pollution.

Disk-footed Bat

- Disk-footed bat (Eudiscopus denticulus) was recorded in Meghalaya's Lailad area near the Nongkhyllem Wildlife Sanctuary.

- Meghalaya has yielded India's first bamboo-dwelling bat with sticky disk-like pads in the thumb and bright orange colouration.

- The disk-footed bat was also found to be genetically very different from all other known bats bearing disk-like pads.

Nongkhyllem Wildlife Sanctuary

- It falls in the Eastern Himalayan Global bio-diversity hot spot.

- It is located near Lailad village in the Ri Bhoi district of Meghalaya.

- Species - Endangered Rufous Necked Hornbill and the brown hornbill bird, the Bengal tiger, the black bear, the leopard.

- Their very high frequency echolocation calls, flattened skull and sticky pads make them suitable for orientation in a cluttered and cramped environment such as inside bamboo groves.

Protection for Exotic Animals

- The Delhi High Court issued an order directing the Centre to frame rules to confer protection for exotic animals that are currently not under the purview of the Wildlife (Protection) Act, 1972 (WPA 1972).
- The order came in response to a petition filed by animal rights group, People for the Ethical Treatment of Animals (PETA) India about the status of a male hippopotamus rescued from a Circus in Uttar Pradesh.

Hippopotamus

- Hippopotamus amphibius is an amphibious African ungulate mammal that lives along the rivers and lakes throughout sub-Saharan Africa.
- Known as water horse (Hippopotamus is Greek for "river horse"), it is the second largest land animal after the elephant.
- Hippos favour shallow areas where they can sleep half-submerged ("rafting") as to seek refuge from the heat.
- Lactating hippo will have white milk combined with Hipposudoric acid and Norhipposudoric acid (secreted by Hippos), makes their milk pink.
- These acids protect the hippos from harmful UV rays (like a sunscreen).
- Conservation Status
    1. **CITES** - Appendix Ill
    2. **IUCN** - Vulnerable
- **Threat** - Loss of Habitat (Humans use their grazing land for farming and diverts water for farming needs) and Human-animal conflict. Poachers kill hippos for their ivory tusks and for sport.
- Extinct in northern Africa and south of Natal and the Transvaal. They are common in East Africa, but populations continue to decrease continent wide.

17.   SCIENCE AND TECHNOLOGY

SPACE

Aditya-L1 Support Cell

- Aditya-L1 Support Cell (AL1SC), a community service centre, has been set up to **bring all science data on board Aditya-L1** to a single web-based interface. This will maximize utilization of data from Aditya-L1.
- [Aditya-L1 is India's first dedicated solar space mission.]
- AL1SC is a joint effort of Indian Space Research Organisation (ISRO) and Aryabhatta Research Institute of Observational Sciences (ARIES), an autonomous institute of the Department of Science & Technology.
- It is set up at the transit campus of ARIES at Haldwani, Uttarakhand.
- AL1SC will act as conduit between the users (student and faculty members from research Institutes/ Universities etc.) and payload teams of Aditya-L1 and solar astronomy research community at large.
- It will develop specific tools to assist guest observers/researchers in analyzing the data and to prepare proposals for Aditya-L1 observations.
- It will assist ISRO with the design and development of the required analysis software for handling scientific data.
- It will provide the co-aligned data from other global observatories that can complement the data obtained from Aditya-L1 to build a solar features event knowledgebase.
- This knowledgebase will be the compendium of different solar features seen on the surface of the Sun and in the heliosphere.

- In addition, AL1SC will build capacity by establishing periodic training of the national user community on data analysis and proposal preparation.

Large Hadron Collider

- Physicists at the Large Hadron Collider (LHC) in Switzerland might have discovered a brand new force of nature.

- LHC is the world's largest and most powerful particle accelerator. It is present in the European Council for Nuclear Research's (CERN's) accelerator complex and was first started up on 10 September 2008.

- It has a 27-kilometre ring of superconducting magnets with a number of accelerating structures to boost the energy of the particles along the way.

- It is designed to produce proton-proton collision, to be followed by collisions between lead nuclei.

- Inside the accelerator, two high-energy particle beams travel at close to the speed of light before they are made to collide. The beams travel in opposite directions in two separate beam pipes kept at ultrahigh vacuum.

- They are guided around the accelerator ring by a strong magnetic field maintained by superconducting electromagnets.

- Much of the accelerator is connected to a distribution system of **liquid helium**, which cools the magnets, as well as to other supply services.

Muon g-2 Experiment

- The American particle accelerator Fermilab that carries the 'Muon g-2' experiment found that the Muons are not wobbling the way they should when exposed to magnetic fields.

- The 'g-factor' measures the strength of a muon's internal magnet, which determines the measure by which it wobbles when exposed to a magnetic field.

- The experiment measured the extent of the anomaly and announced that 'g' deviated from the amount predicted by the 'Standard Model' of particle physics.

- In the Muon g-2 experiment, the muons are exposed to a magnet and a flurry of other sub-atomic particles known as the 'quantum foam'.

  1. The particles of the quantum foam pop into existence and go out in really short durations of time.

  2. While the magnet causes the greatest change in the g-factor, the quantum foam can also influence the g-factor to an extent.

- A new force of nature or a new fundamental sub-atomic particle is perhaps influencing the muons.

> **Muon**
>
> - Muon or fat electron is an elementary subatomic particle similar to the electron but 207 times heavier. It has two forms - the negatively charged muon and its positively charged antiparticle.
>
> - Muon acts like a tiny magnet and therefore gets influenced by magnetic fields. When placed in an external magnetic field, the muon wobbles.

Russia to leave International Space Station

- Russia announced that it would be withdrawing from the International Space Station in 2025, and build and manage its own floating laboratory that will be launched into orbit by 2030.

- The decision to leave also comes at a time when relations between Russia and the US have been steadily deteriorating on multiple fronts.

- **International Space Station** is the only active modular space station (habitable artificial satellite) in the Low-Earth Orbit (LEO).

- It is the largest artificial object in space and the largest satellite in low Earth orbit, visible to the naked eye from Earth's surface.

- It is like a large laboratory in space that has been there since 1998. It allows astronauts to come aboard and stay for weeks or months to carry out experiments in microgravity.

- It is a joint project between five participating space agencies - NASA (USA), Roscosmos, Japan Aerospace Exploration Agency (JAXA), European Space Agency, and Canadian Space Agency.

Apophis Asteroid

- First detected in 2004, Apophis is now officially off National Aeronautics and Space Administration's (NASA's) asteroid "risk list".

- This has ruled out any chance of Apophis smacking Earth in 2068, and don't show any impact risk for at least the next 100 years.

- **Asteroids** or planetoids or minor planets are made up of metals and rocks. They revolve around the sun and are too small to be called planets.

- Asteroid belt is located roughly between the orbits of the planets Jupiter and Mars. The mass of all the asteroids is less than that of Earth's moon.

Sentry

- It is NASA's highly automated collision monitoring system that continually scans the most current asteroid catalog for possibilities of future impact with Earth over the next 100 years.

- Whenever a potential impact is detected, it will be analyzed and the results will be immediately published in the 'asteroid risk list', except in unusual cases where independent confirmation is sought.

Asteroid Impact and Deflection Assessment (AIDA)

- It is the first international space mission to demonstrate asteroid impact hazard mitigation using a kinetic impactor to deflect an asteroid and measure the deflection.

- This mission that targets a double asteroid called Didymos is cooperation between NASA's Double Asteroid Redirection Test (DART) mission and European Space Agency's (ESA's) Hera.

    1. DART (to be launched in 2021) would slam into the smaller asteroids of the Didymos system in 2022.

    2. Hera (to be launched in 2024) would measure the impact crater produced by DART collision and study the change in the asteroid's orbital trajectory. It will arrive at the Didymos system in 2027.

- AIDA will help in studying asteroid strength, surface physical properties and internal structure.

Zhurong

- Chinese government announced that its first Mars rover will be named Zhurong after a traditional fire god. This name fits with the Chinese name for Mars - "Huo Xing" or fire star.

- The rover is aboard the Tianwen-1 probe that arrived in Mars orbit in February, 2021 and is due to land in May to look for evidence of life.

- The top candidate for the landing site on Mars is Utopia Planitia, a rock-strewn plain where the U.S. lander Viking 2 touched down in 1976.

- **Tianwen-1's Goals** - To analyse and map the Martian surface and geology, look for water ice, study the climate and surface environment.

- China would become the third country after the former Soviet Union and the United States to put a robot rover on Mars.

Mars Oxygen In-Situ Resource Utilization Experiment

- NASA has announced that the Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE) aboard the Perseverance rover was able to produce oxygen from the thin Martian atmosphere for the first time.

- MOXIE produced 5 grams of oxygen from carbon dioxide, enough for an astronaut to breathe for 10 minutes in Mars. It is designed to generate up to 10 grams of oxygen per hour.

- [In Mars' atmosphere, carbon dioxide makes up ~96% of the gas. But, oxygen is only 0.13%, compared to 21% in Earth's atmosphere.]

- To produce oxygen, MOXIE separates oxygen atoms from carbon dioxide molecules by using heat at a temperature of around 800 degrees Celsius.

- In the process, it also produces carbon monoxide as a waste product, which it releases in the Martian atmosphere.

- **Importance** - A substantial amount of oxygen supply on Mars is essential for crewed missions to Mars - Astronauts could breathe it.

- The oxygen produced could be used as liquid oxygen propellant and the rockets could use it as fuel while coming back to Earth.

Explosion Mechanism of Supernovae

- A team of Indian astronomers observed a distant Type Ia Supernova called SN 2017hpa, which exploded in 2017.

- This helped narrow down the explosion mechanism of the supernovae (SNe) by observations of unburned carbon in the early phase spectra.

- Type Ia supernovae (SNeIa) are result of explosions of white dwarfs that exceed their mass beyond the Chandrasekhar limit through accretion of matter.

- Their homogeneous nature makes them extremely good standardizable candles to **measure cosmological distances**.

- While most SNeIa are homogeneous, a good fraction of these events show diversity in both their light curve as well as spectral properties.

- The study will help understand the diversity as a function of progenitor as well as its properties and the explosion mechanism of such SNe.

- [Progenitor systems - star which is at the origin of a supernova phenomenon.]

- The burning front in the white dwarf moves or propagates at speeds less than speed of sound which leaves behind unburned material.

- The expansion velocity calculated using these unburned features can provide a hint towards the velocity structure of the ejected material.

- It is generally expected that the unburned material will be present in the outermost layers of the ejecta and expand with velocity higher than photospheric velocity (velocity of the outer most layer of the star).

- This study has shown that the unburned layer is moving with photospheric velocity indicating that mixing of the explosion materials is dominant within the ejected material.

DEFENCE

Nanosniffer

- It is the world's first Microsensor based Explosive Trace Detector (ETD) developed by an Indian Institute of Technology (IIT) Bombay incubated startup called NanoSniff Technologies.

- Its core technology is protected by patents in the U.S. & Europe.

- NanoSniffer is an advanced, affordable and a 100% Made in India product in terms of research, development & manufacturing.

- It will reduce dependency on imported ETD devices.

Advanced Chaff Technology

- This technology was developed by the Defence Research and Development Organisation (DRDO) to safeguard the Indian naval ships against enemy missile attack.

- Chaff (or Window) is a passive expendable electronic countermeasure technology used worldwide to protect naval

Others

- Unexploded Ordnance Handling Robot (UXOR) was developed for Indian Air Force and Indian Army. It can handle 1,000 kg of ordnance.

- Sindhu Netra satellite developed by DRDO was deployed in space in 2021 to boost the surveillance capability of India and monitor military warships and merchant shipping in the Indian Ocean Region.

ships from enemy's radar and Radio Frequency (RF) missile seekers.

- The most significant fact of this Technology is that it uses very less quantity of chaff material deployed in the air to deflect enemy's missiles for safety of the ships.

- Defence Laboratory Jodhpur (DLJ), a DRDO laboratory, has developed three variants of this critical technology,

  1. Short Range Chaff Rocket,

  2. Medium Range Chaff Rocket and

  3. Long Range Chaff Rocket.

- This technology is being given to the industry for bulk production in large quantities.

- It can accurately detect nano-gram quantity of military, commercial and homemade explosives. It delivers the results in less than 10 seconds.

- It detects all classes of military, conventional and homemade explosives.

HEALTH

Ct Value

- The Indian Council of Medical Research (ICMR) said that all patients with a Ct value **less than 35** may be considered as Covid-positive while those with a Ct value above 35 may be considered as Covid-negative.

- [Globally, the accepted cut-off for Ct value for Covid-19 varies from 35 to 40, depending on instructions from the equipment's manufacturers.]

- The 'Cycle Threshold value' (Ct value) refers to the number of cycles in RT-PCR tests after which the virus can be detected.

- **Working** - In an RT-PCR test, RNA is extracted from the swab collected from the patient. It is then converted into DNA, which is then amplified.

- [Amplification refers to the process of creating multiple copies of the genetic material — in this case, DNA.]

- This improves the ability of the test to detect the presence of virus.

- Amplification takes place through a series of cycles and it is after multiple cycles that a detectable amount of virus is produced.

- According to the ICMR advisory, the Ct value of an RT-PCR reaction is the number of cycles at which fluorescence of the PCR product is detectable over and above the background signal.

  1. If a higher the Ct value, it implies that the virus went undetected when the number of cycles was lower.

  2. The lower the Ct value, the higher the viral load - because the virus has been spotted after fewer cycles.

- Although Ct value is inversely correlated with viral load, there is no correlation between a Ct value and severity of disease or mortality in patients with Covid-19 disease.

- The ICMR advised not to use a lower cycle threshold parameter as it would lead to missing several infectious persons.

- Ct values may differ between nasal and oropharyngeal specimens collected from the same individual.

Double-mutant Variant of Corona

- An Indian variant of the coronavirus with two key mutations, now known as 'B.1.617', has been detected in the US, Germany, the UK, Australia and Singapore and enhancing viral replication.

- This double mutant strain (with E484Q and L452R mutations) was announced by the National Centre for Disease Control (NCDC) on March end after it was identified in Maharashtra, Delhi, and Punjab.

- The Indian SARS-Cov-2 Consortium on Genomics (INSACOG) - a group of 10 national laboratories - has been conducting genomic sequencing of variants in India.

- B.1.617 has now been found in 8 countries. Approximately 70% of the cases are noted to be from India.

- The double mutation depicts two separate spike protein substitutions on this coronavirus strain.

- The spike protein is basically a part of the virus's outer layer, through which it attaches to the human cells, and invades into the body.

- Both these variants can alter the structure of the spike protein, making it more efficient in attaching with the host cells and multiplying faster.

- Such mutations can result in immune escape and increased infectivity.

- They can also create a neutralising impact on the antibodies generated from vaccines or the first infection.

Emergency Use Authorisation

- The Drugs Controller General of India (DCGI) has given 'Emergency Use Authorisation (EUA)' to three anti-Covid vaccines - Covishield, Covaxin and Russian Sputnik V.

- The DGCI has been issuing EUAs based on clinical trial data. These issues helped in rolling out the world's largest vaccination drive.

- **Working** - During a declared emergency, it may not be possible to have all the evidence that a drug regulator would normally require for approving a drug, vaccine, device or a test.

- So, a drug regulator can issue a EUA to a medical product that isn't fully tested to make it widely available for use, if the regulator is satisfied that the product meets reasonable thresholds for safety and effectiveness.

- But, EUA doesn't mean that a vaccine has skipped essential safety trials.

- Drug regulators must follow a basic thumb rule to approve a medical product - The known potential benefits should outweigh the known potential risks.

Phases in Vaccine Trial

- Normally, developing vaccines or drugs takes several years. A good part of this goes in carrying out trials to establish their safety and efficacy.

- **Phase 1 trials** - A vaccine is given to a limited sample set of healthy people to assess its safety at higher doses.

- **Phase 2 trials** A vaccine is undertaken on hundreds of people with different health conditions and from different population strata.

- This helps assess both the effectiveness and the side-effects.

- **Phase 3 trials** - It involves much larger sample, representative of the actual population, to assess both safety and efficacy.

Sero Survey

- The third sero survey conducted within Mumbai has shown the presence of antibodies in 36.30% samples out of the total 10,197.

- The survey included blood samples of only those who had not been vaccinated were collected.

- The sero positivity rate has increased in non-slum areas compared with slum areas.

- [**Sero Positivity** means positive result of a blood test for a particular antibody (a substance in the blood that fights a disease).]

- The health department of the Brihanmumbai Municipal Corporation (BMC) has recommended intensifying vaccinations among the general public as the best way to control the spread of the coronavirus.

Oxygen Express

- Indian Railway is running Oxygen Expresses with Liquid Medical Oxygen (LMO) tankers in response to the fight against Covid-19.

- First Oxygen Express is going to start its journey from Visakhapatnam to Mumbai through Ro-Ro service of Indian Railways.

- A green corridor was created between Lucknow to Varanasi for another Oxygen Express that started its journey from Lucknow to Bokaro via Varanasi to fulfil the requirements of Medical Oxygen.

- **Liquid Medical Oxygen (LMO)** is supplied and stored as a liquid at very low temperatures, in vessels and storage tanks.

- LMO must be supplied at the medical oxygen purity of 99.5% (min). In hospitals, the converted Medical Oxygen, a gas at normal temperatures, is supplied via a medical gas pipeline system.

CSIR-CMERI Oxygen Enrichment Unit

- CSIR-CMERI has invited Expression of Interest (EoI) for manufacturing CSIR-CMERI Oxygen Enrichment Units through Technology Transfer.

- [CSIR-CMERI is Council of Scientific & Industrial Research-Central Mechanical Engineering Research Institute]

- As oxygen therapy is suggested for severe illness caused by Coronavirus, the **optimised oxygen administering device,** CSIR-CMERI Oxygen Enrichment Unit, will help meet the Medical grade oxygen demand.

- It can be developed both as standalone Oxygen Enrichment Unit as well as with integrated version with 'Swasth Vayu' technology of CSIR-NAL.

- **Features** - The unit concentrates the Oxygen from the air around us by removing nitrogen to supply an oxygen-enriched air.

- The unit works on the principle of Pressure Swing Adsorption (PSA).

- It requires easily available oil free reciprocating compressor, Oxygen grade Zeolite Columns for selective removal of nitrogen from air under certain pressure, thereby increasing the Oxygen Concentration.

- **Capacity** - It is capable of delivering medical air in the range of up to 15 LPM with oxygen purity of more than 90%.

- If required, this unit can even deliver up to 70 LPM at a purity of around 30% and can safely be placed in the isolation ward of the hospital.

- **Uses** - The device may be used in Homes or Hospital type facilities for patients with chronic obstructive pulmonary diseases (COPD), chronic hypoxemia and pulmonary edema to improve Oxygenation in the blood.

- It may be used as an adjunct treatment for severe sleep apnea (in conjunction with a continuous positive airway pressure unit).

- It would minimize the supply chain problem of transportation and storage risks related to oxygen cylinders.

- The Outreach Factor of Oxygen will be multiplied through the adoption of this in-situ and decentralised generation of Oxygen.

HGCO19

- The Department of Biotechnology (DBT) has approved additional funding towards clinical studies of India's 'first of its kind' mRNA-based COVID-19 vaccine - HGCO19.

- This funding has been awarded under the 'Mission Covid Suraksha - The Indian COVID-19 Vaccine Development Mission', implemented by the Biotechnology Industry Research Assistance Council (BIRAC).

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mRNA Vaccines

- mRNA vaccines are considered safe as mRNA is non-infectious, non-integrating in nature, and degraded by standard cellular mechanisms.

- They are highly efficacious because of their inherent capability of being translatable into the protein structure inside the cell cytoplasm.

- Additionally, mRNA vaccines are fully synthetic and do not require a host for growth, e.g., eggs or bacteria.

- Therefore, they can be quickly manufactured inexpensively under cGMP conditions to ensure their "availability" and "accessibility" for mass vaccination on a sustainable basis.

- It is the Indian Covid-19 Vaccine Development Mission, which will help the development process of the vaccine candidates.

B Cells and T Cells

- The principle of immunisation or vaccination is based on the property of 'memory' of the immune system.

- In vaccination, a preparation of antigenic proteins of pathogen or inactivated/weakened pathogen (vaccine) is introduced into the body.

- The antibodies produced in the body against these antigens would neutralise the pathogenic agents during actual infection.

- The vaccines also generate memory – B and T-cells or lymphocytes that **recognise the pathogen quickly on subsequent exposure** and overwhelm the invaders with a massive production of antibodies.

Similarities between B and T cells

- B cells and T cells are the White Blood Cells of the immune system that are responsible for adaptive immune response in an organism.

- Both B and T cells are structurally similar and originate in bone marrow.

- Both the cells are non-phagocytic and are a part of lymphatic system.

Differences	B-Cells	T-Cells
Production	Bone marrow	Bone marrow
Maturity	Bone marrow	Thymus
Location	Outside lymph node	Inside lymph node
Attacks by	Connecting to the surface of invading bacteria and virus	Connecting only to the outside of the virus antigen
Life Span	Short	Long
Secretion	Antibodies	Lymphokines
Types	Only one active type	Helper and Killer Cell types

OTHERS

Oldest Water on Earth

- In 2009, the world's oldest water (1.6 billion years old) was discovered from Kidd Creek mine on the 2.7 billion-year-old Canadian Shield.

- [The age of this highly saline water (ten times saltier than sea water) was found using mass spectrometer in the UK's Oxford University.]

- The discovery of this water 2.4 km below the Earth's surface will help in understanding the origin and evolution of Earth, the nature of water and life, as well as the possibility of finding life on Mars.

- Investigations into the highly saline water led to a discovery of **chemolithotrophic microbes** (bacteria that can thrive in the extreme surroundings) had been able to survive in the subterranean liquid.

  o The microbes had been feeding on nitrogen and sulphate, and that the chemistry that supported them bore resemblance to ocean beds that are known to support similar such extreme life forms.

- Being a continental shield, which suffers the least from plate tectonic activity, the Canadian Shield is the closest analogue on Earth to the subsurface of Mars.

- Scientists argue that if life-supporting water can be found 2.4 km below the Earth, it may be possible that the same could be the case in Mars.

- This hypothesis provides an impetus for missions like Perseverance, which are looking for signs of present or past life on Mars.

Canadian Shield

- The Canadian Shield is one of the world's largest continental shields i.e. the oldest and least tectonically active parts of the Earth's crust.

- In the past, the Canadian Shield used to form an ocean floor. Over millions of years of flux, however, its horizontal seabed became vertical, now preserved in the mine's rock walls.

Baikal-GVD

- Russian scientists launched Baikal-GVD (Gigaton Volume Detector), an underwater neutrino telescope in the waters of Lake Baikail, the world's deepest lake situated in Siberia.

> **Neutrinos**
> - They are the 2nd most abundant particles, after photons (light particles).
> - They are not easy to catch, as they do not carry a charge, as a result of which they do not interact with matter.
> - They also might have unique properties that would help explain why the universe is made of matter instead of antimatter.
> - Subatomic particles that make up antimatter have properties that are opposite to the subatomic particles of normal matter.
> - Protons, neutrons and electrons (subatomic particles of normal matter) are among the 12 quarks and leptons have been discovered so far.

- Baikal-GVD is one of the world's three largest neutrino detectors along with the IceCube (South Pole) and ANTARES (Mediterranean Sea).

- The telescope will study in detail the elusive fundamental particles called neutrinos and to possibly determine their sources.

- Studying them will help us understand the origins of the universe since some neutrinos were formed during the Big Bang; others continue to be formed due to supernova explosions or nuclear reactions in the Sun.

- One way of detecting neutrinos is in water or ice, where neutrinos leave a flash of light or a line of bubbles when they interact.

- An underwater telescope such as the GVD is designed to detect high-energy neutrinos that may have come from the Earth's core, or could have been produced during nuclear reactions in the Sun.

Mini-LEDs

- Apple would announce new devices sporting the Mini-LEDs technology.

- Mini-LEDs (Mini-Light Emitting Diodes) are very small LEDs (0.2 mm or even smaller) that collectively produce the backlight on LCD panels.

- Sitting behind the LCD matrix, they offer granular control over light intensity and hence a better contrast ratio.

- This technology, where the backlight is divided into multiple zones is called **Local Dimming** and is a common feature in LCD displays.

- The super 'mini' size of Mini-LEDs allows the backlight to be divided into many more Local Dimming zones.

- However, Mini-LEDs are slightly bigger in size than the Micro-LEDs.

- Micro-LEDs panels are an extension of OLED panels, on a more precise scale. They mean smaller individual LED panels in an OLED screen.

- **Importance** - Mini-LEDs are the best of both worlds between traditional LCDs and OLED (Organic LEDs) panels.

- They bring the contrast of OLED panels and are set to be much easier and cheaper to make than OLED displays.

- The ease of making a Mini-LED panel (compared to an OLED or Micro-LED panel) also means they can be used to construct small displays.

Supramolecules in Capacitors

- Researchers from Indian Institute of Science Education and Research (IISER), Bhopal, are developing a novel dielectric material for capacitors.

- Supramolecular chemistry and crystal engineering was used to design, synthesise and crystallise organic materials with high dielectric constants.

- ['Supramolecular chemistry' is the study of large molecules formed by weak and reversible (non-covalent) bonds.]

- These materials will be developed from non-toxic organic compounds that have dielectric constants comparable to inorganic material.

Dielectric material
- Dielectric material is the key component of capacitors - devices that store electrical charges (like batteries).   - These are a class of electrical insulators that can store electrical charges in the presence of an externally applied electric field.   - The charge stored is measured in terms of the 'dielectric constant' - the more the charge stored, the higher the constant.

18.   INDEX & REPORT

Global Gender Gap Index 2021

- This Index was released by the World Economic Forum since 2006. It serves as a compass to track the progress on their towards gender parity of the countries in four areas,

    1. Political Empowerment,

    2. Economic Participation and Opportunity,

    3. Educational Attainment and

    4. Health and Survival.

- It also examines the drivers of gender gaps and outlines the policies and practices needed for a gender-inclusive recovery.

- The index scores the countries from 0 (inequality) to 1 (equality).

- **Findings** - Among 156 countries ranked by the Gender Gap Report 2021, Iceland is the most gender-equal country in the world.

- India has ranked 140th rank, becoming the third-worst performer in South Asia. India has closed 62.5% of its gender gap till date.

- For India, most of the decline occurred on the political empowerment subindex. The decline also took place on the economic participation and opportunity subindex, and health and survival subindex.

- The estimated earned income of women in India is only one-fifth of men's, which puts the country among the bottom 10 globally on the economic participation and opportunity subindex.

State of World Population Report 2021

- State of World Population Report 2021 titled 'My Body is My Own' is a flagship report launched by the UN Population Fund (UNFPA).

- This is the first time a UN report has focused on **bodily autonomy,** defined as the power and agency to make choices about your body without fear of violence or having someone else decide it for you.

- **Findings** - Nearly half the women from 57 developing countries do not have the right to make decisions regarding their bodies, including using contraception, seeking healthcare or even on their sexuality.

- Only 55% of women have fully empowered to make choices over healthcare, contraception and the ability to say yes or no to sex.

- Only 75% countries legally ensure full and equal access to contraception.

- Examples of violation of bodily autonomy –

1. Child marriage,

2. Female genital mutilation,

3. Lack of contraceptive choices leading to unplanned pregnancy,

4. Unwanted sex exchanged for a home and food,

5. When people with diverse sexual orientations and gender identities cannot walk down a street without fearing assault or humiliation.

6. People with disabilities stripped of their rights to self-determination, to be free from violence and to have a safe and satisfying sexual life.

- **UNFPA's Goal** - To end the global unmet need for contraception, preventable maternal deaths, gender-based violence and harmful practices by 2030.

Renewable Capacity Statistics Report 2021

- The Renewable Capacity Statistics 2021 report was released by the International Renewable Energy Agency (IRENA).

- It said that 260 gigawatts (GW) of new renewable energy capacity was added worldwide in 2020, up 50% from the year before, as countries further reduced their reliance on fossil fuel power.

- More than 80% of all new electricity capacity added in 2020 was renewable, with solar and wind accounting for 91% of new renewables.

- Rise in new capacity was partly due to the decommissioning of fossil fuel power generation in Europe, North America and in Armenia, Azerbaijan, Georgia, Russia and Turkey.

- China, the world's largest market for renewables, added 136 GW of renewables last year, while the United States installed 29 GW.

- Share of renewables in energy generation worldwide stands at 30%.

- Nations are switching from fossil fuels to renewables in an effort to meet the long-term goal, agreed under the 2015 Paris Agreement, of limiting a rise in average temperatures to below 2° C above pre-industrial levels.

- This requires countries to reach net zero carbon emissions by 2050.

Report on Light Pollution

- The Royal Astronomical Society has published the first-ever study that took into account the overall impact of space objects around Earth.

- This study was done by the Slovak Academy of Sciences and Comenius University in Slovakia.

- This study has shown that the objects sent to space that orbit the Earth increase the overall brightness of night sky by 10% above natural levels.

- This additional light pollution has an impact over a larger part of the globe than ground-based sources.

- For calculations, the scientists from institutions in Slovakia, Spain and the US considered the active satellites as well as artificial space debris.

- Large fleets of communication satellites in the space not just add to the light pollution but also collide and form more debris.

- Light from this piling debris cloaks astronomical bodies like 'the glowing clouds of stars in the Milky Way' from human sight.

WWF Report on Sturgeon

- According to a World Wildlife Fund (WWF) report, illegal sale of sturgeon is rampant in the lower Danube region (mainly in Bulgaria, Romania, Serbia and Ukraine) - first survey to quantify illegal trade.

- [Danube is Europe's second-longest river after the Volga, flowing through much of Central and Southeastern Europe, from the Black Forest into the Black Sea.]

- Sturgeon is poached for its meat and caviar - Caviar is a food consisting of salt-cured egg of a fish. It is considered a delicacy.

- The researchers did an isotope analysis for each sample and found that almost 20% were wild-caught sturgeon and did not come from farms.

- The report recommended controlling domestic trade; increasing border controls; improved inter-agency cooperation and coordination; controlling the CITES caviar labelling requirements.

Sturgeons

- Sturgeons, which are one of the most endangered fish species, have existed since the time of dinosaurs - for about 200 million years.

- They are called 'living fossils' as their appearance has altered very little over the years.

- As the sturgeons live for many years, mature late and spawn with long intervals, they take a long time to recover from environmental and human pressures.

- This makes them great indicators for the health of the river and other ecological parameters.

- **Threats** - They are now on the brink of extinction due to overfishing, illegal caviar trade, habitat degradation and loss, and pollution. Also, a wave of new hydropower dams built particularly in the Danube basin.

- **IUCN Red List Status**
   a) 63% of the 27 species of sturgeon, which includes Caspian Sea species, 5 of the 6 Danube River species - Critically Endangered
   b) Four species - Possibly Extinct

- **CITES** - Appendix-II

World Press Freedom Index 2021

- It is published by the Reporters Without Borders or Reporters Sans Frontieres (RSF) since 2002.

- It ranks countries and regions according to the level of media freedom available to journalists.

- It is based on an evaluation of media freedom that measures pluralism, media independence, media environment and self-censorship, transparency, and the legal framework and the safety of journalists.

- It is also based on the quality of the infrastructure that supports the production of news and information.

- It includes indicators of level of media freedom violations in each region.

Findings

- The 2021 index ranked 180 countries. It is topped by Norway, while Eritrea is at the bottom.

- India is ranked 142, same as last year, after it had consistently slid down from 133 in 2016. India continues to be counted among the countries classified "bad" for journalism, along with Brazil, Mexico and Russia.

- With four journalists killed in connection with their work in 2020, India is one of the world's most dangerous countries for journalists trying to do their job properly.

- Instead of drafting new repressive laws to impose censorship, many Asia-Pacific countries have contented themselves with strictly applying existing laws that was already very draconian.

International Religious Freedom Report 2021

- This report was released by the United States Commission on International Religious Freedom (USCIRF).

- For the second year in a row, it has recommended that the State Department put India on a 'Countries of Particular Concern (CPCs)' list for the worst violations of religious freedoms in 2020.

- It recommended imposing targeted sanctions on Indian individuals and entities for 'severe violations of religious freedom'.

- It recommended for the administration to promote inter-faith dialogue and the rights of all communities at bilateral and multilateral forums.

- It recommended the U.S. Congress to raise issues in the US-India bilateral space, such as by hosting hearings, writing letters, etc.,

- **CPC list** - Russia, Syria, Vietnam, Burma, China, Eritrea, Iran, Nigeria, North Korea, Pakistan, Saudi Arabia, Tajikistan and Turkmenistan.

- **Special Watch List** - Afghanistan, Algeria, Azerbaijan, Cuba, Egypt, Iraq, Indonesia, Kazakhstan, Malaysia, Turkey, Nicaragua and Uzbekistan.

United States Commission on International Religious Freedom

- It is an independent bi-partisan U.S. federal government commission that was created by the International Religious Freedom Act, 1998.

- It is dedicated to defending the universal right to freedom of religion or belief abroad.

- It monitors religious freedom violations globally and makes policy recommendations to the President, the Secretary of State, and Congress.

State of the Global Climate 2020

- This annual report is released by the World Meteorological Organization.

- It has found that the lockdowns and shutdowns to curb the Covid-19 pandemic would lower emissions and reduce the impact on climate.

- **Double blow** - According to the report, extreme weather combined with Covid-19 in a double blow for millions of people in 2020.

- However, the pandemic-related economic slowdown failed to put a brake on climate change drivers and accelerating impacts.

- **Temperature** - It reiterates that 2020 was one of the three warmest years on record, despite a cooling La Niña event.

- The global average temperature was about 1.2° Celsius above the pre-industrial (1850-1900) level. The six years since 2015 have been the warmest on record. 2011-2020 was the warmest decade on record.

- The WMO report listed five key indicators of irreversible changes in the global climate - Greenhouse gases, oceans, sea-level rise, the Arctic and the Antarctica.

Five Key Indicators

- **Greenhouse Gases (GHGs)** - Despite the economic slowdown due to the pandemic, emission of major GHGs increased in 2019 and 2020. It will be higher in 2021.

- **Oceans** - In 2020, the oceans had the highest heat content on record. Over 80% of the ocean area experienced at least one marine heatwave.

- The percentage of the ocean that experienced strong marine heat waves (45%) was greater than that which experienced moderate marine heat waves (28%).

- **Sea-level rise** - Since record-taking started in 1993 using the satellite altimeter, sea-level has been rising partly due to the increased melting of the ice sheets in Greenland and Antarctica.

- However, there was a blip in summer of 2020 that recorded a drop in sea level, which is due to the La Niña induced cooling.

- **The Arctic -** The 2020 Arctic sea-ice extent minimum after the summer melt was 3.74 million square kilometre, marking only the second time on record that it shrank to less than 4 million sq km.

- In the Siberian Arctic, temperatures in 2020 were more than 3°C above average, with a record temperature of 38°C in the town of Verkhoyansk.

- **The Antarctica** - The Antarctic sea-ice extent remained close to the long-term average. However, the Antarctic ice sheet has exhibited a strong mass loss trend since the late 1990s.

- This trend accelerated around 2005 due to the increasing flow rates of major glaciers in West Antarctica and the Antarctic Peninsula.

SIPRI Data

- The Stockholm International Peace Research Institute, which tracks military expenditure and arms trade globally, has published the latest military expenditure database.

- Military spending as a share of Gross Domestic Product (GDP), reached a global average of 2.4% in 2020, up from 2.2% in 2019.

- **Largest Military Spender** - The US, China, India, Russia and the UK together accounted for 62% of global military expenditure in 2020. Other top spenders are Saudi Arabia, Germany and France.

- Of the money spent on military globally, the US, China and India accounted for 39%, 13% and 3.7% of the global share respectively.

- While India's spending since 2019 grew by 2.1%, the increase for China was at 1.9%. The US's spending grew by 4.4% since 2019.

- From 2011 to 2020, American military expenditure dropped by 10%, but China saw a 76% growth while India's military spending grew by 34%.

- **Asia and Oceania** - Military spending was 2.5% higher in 2020 than in 2019 and 47% higher than in 2011, continuing an uninterrupted upward trend since 1989.

- It attributed the rise primarily to increases in spending by China and India, which together accounted for 62% of total military expenditure in the region in 2020.

- **Europe** - Military spending rose by 4.0% in 2020.

- **Sub-Saharan Africa** - Military expenditure increased by 3.4% in 2020.

- **Middle Eastern Countries** - The combined military spending of the 11 Middle Eastern countries decreased by 6.5% in 2020.

- **Military Burden** - The 2.6% increase in world military spending came in a year when the global GDP shrank by 4.4%, largely due to the economic impacts of the Covid-19 pandemic.

- As a result, military spending as a share of GDP - the military burden -reached a global average of 2.4% in 2020, up from 2.2% in 2019.

- This was the biggest year-on-year rise in the military burden since the global financial and economic crisis in 2009.

National Climate Vulnerability Assessment Report

- The report, titled 'Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework' was released by the Department of Science and Technology (DST).

- It identifies the most vulnerable states, districts and panchayats in India with respect to current climate risk and key drivers of vulnerability.

- It was coordinated by the Climate Change Program of SPLICE Division of the DST in partnership with the Swiss Agency for Development and Cooperation, Embassy of Switzerland.

- [SPLICE - Strategic Programs, Large Initiatives and Coordinated Action Enabler]

- It was part of a capacity building programme under the National Mission on Sustaining the Himalayan Ecosystem and National Mission on Strategic Knowledge for Climate Change.

Findings

- The report revealed that eight Indian states - Chhattisgarh, Jharkhand, Mizoram, Odisha, Assam, Bihar, Arunachal Pradesh and West Bengal - are highly vulnerable to climate change.

- Key vulnerability drivers are lack of forest area per 100 rural population, low road density, poor health infrastructure, lack of implementation of MGNREGA, lack of women's participation in workforce, among others.

- Among all states, Assam, Bihar and Jharkhand have over 60% districts in the category of highly vulnerable districts.

- **States with lower-middle vulnerability** - Himachal Pradesh, Telangana, Sikkim and Punjab.

- **States with low vulnerability** - Uttarakhand, Haryana, Tamil Nadu, Kerala, Nagaland, Goa and Maharashtra.

- **Uses** - The report will aid in prioritising adaptation investment, developing and implementing adaptation programmes by the states.

- The assessments can further be used for India's reporting on the Nationally Determined Contributions under the Paris Agreement. They will support India's National Action Plan on Climate Change.

Comprehensive Environmental Pollution Index

- Comprehensive Environmental Pollution Index (CEPI) is a rational number to characterise the quality of the environment at a given location following the algorithm of source, pathway and receptor.

- An increase in CEPI score denotes adverse effects on the receiving environment.

- A Delhi-based think-tank Centre for Science and Environment (CSE) did an assessment of Tamil Nadu's CEPI scores.

- Groundwater is becoming more polluted in Tamil Nadu's industrial areas and Vellore is the state's most polluted district in terms of river pollution.

- According to the CEPI water score 2018, five industrial clusters in Tamil Nadu were found to have a water score of more than 50. Of these,

    1. Vellore-North Arcot, Manali and Tiruppur were 'critically polluted areas' - CEPI individual score of 60 and above.

    2. Cuddalore and Coimbatore were 'severely polluted areas' - CEPI individual score between 50 and 60.

- Most serious pollution threat to groundwater was from calcium, chloride and iron that are associated with sewage and pollution from tanneries.

PRELIMS PRACTICE QUESTIONS

1) Consider the following statements with respect to *PRISM Scheme*

1. It is an initiative to promote and support science-based deep-tech startups & ventures across India.

2. It was launched by the Department of Scientific and Industrial Research (DSIR), Ministry of Science and 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

2) Consider the following statements with respect to *AIM-PRIME Programme*

1. It aims to transform an individual innovator into a successful technopreneur by supporting implementable innovations created for the society.

2. It was launched by the Atal Innovation Mission (AIM), in partnership with World Bank.

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

3) *Ingenuity*, **often seen in the news recently, refers to?**

a) A Robotic helicopter located on Mars

b) World's largest solar powered warship

c) World's first retail quantum computer

d) A Substance used to improve the effectiveness of a vaccine

4) *Vaccine Wastage* **can be occurred during which of the following reasons?**

1. if the vaccine has been frozen

2. if the vaccine is exposed to heat

3. if the expiry date has been reached

Select the correct answer using the codes given below:

a) 1 and 2 only

b) 2 and 3 only

c) 1, 2 and 3

d) None of the above

5) Which of the following statements with respect to *National Policy for Rare Diseases, 2021* **is incorrect?**

a) It categorizes rare diseases into three groups and its funding pattern

b) 95% of rare diseases have no approved treatment and less than 1 in 10 patients receive disease specific treatment

c) The government will notify Centres of Excellence (CoE) for management of rare diseases and provided a one-time grant to a maximum of Rs.5 crore each

d) The rare diseases that requires very high cost and lifelong therapy will be provided Rs. 20 lakh under the RashtriyaArogayaNidhi

6) *Stockholm+50* **is a high level meeting that will primarily focus on which of the following area?**

a) Arms control and disarmament.

b) Counter Terrorism and Cyber Security

c) Artificial Intelligence and Cryptocurrency

d) Environmental Conservation

7) Consider the following statements with respect to *Digital India Land Records Modernisation Programme*

1. Under the program Unique Land Parcel Identification Number (ULPIN) has been introduced which will uniquely identify every surveyed parcel of land and prevent land fraud.

2. It is an initiative of Ministry of Home Affairs and Indian Institute of Remote Sensing.

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 *Elsa-D Mission*

1. It is the world's first commercial mission to demonstrate a space debris removal system.
2. It was launched by the National Aeronautics and Space Administration (NASA) in cooperation with European Space Agency (ESA).

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) Which of the following are part of *E9 countries* which was led by the United Nations (UN)?

1. India
2. Egypt
3. China
4. Pakistan
5. Bangladesh

Select the correct answer using the codes given below:

a) All except 1 and 5
b) All except 3 and 4
c) All except 2, 3 and 4
d) All of the above

10) Which of the following statements are correct with respect to *Non-Fungible Token (NFT)*

1. It is a unit of data on a digital ledger called a block chain, where each NFT can represent a unique digital item, and thus they are not interchangeable.
2. They can be used to commodify digital creations, such as digital art, video game items, and music files.

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) Which of the following sectors in India is/are approved by the Union Cabinet for the *Production-Linked Incentive (PLI) Scheme* so far?

1. White Goods
2. Food Products
3. Textile Products
4. Automobiles & Auto Components
5. Manufacturing of Medical Devices

Select the correct answer using the codes given below:

a) 5 only
b) All except 1 and 4

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c) All except 3 and 4

d) None of the above

12) Which of the following statements are correct with respect to *Wolf-Rayet Star*?

1. The massive stars which are at an advanced stage of stellar evolution and losing mass at a very high rate.

2. They are highly luminous objects, a thousand times more than the Sun.

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

13) Which of the following statements are correct with respect to *Supreme Court Portal for Assistance in Court's Efficiency (SUPACE)*

1. It is a tool that collects relevant facts and laws and makes them available to a judge.

2. It is designed to correlate and verify evidence in given cases and suggests better judgements to magistrates.

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

14) *NanoSniffer*, sometimes seen in the news recently, refers to?

a) Explosive trace detector

b) A software to analyze network traffic

c) Microprocessor based hacking networks

d) None of the above

15) Consider the following statements with respect to *Madhukranti Portal*

1. It is an initiative of Khadi Village Industries Commission (KVIC) and TRIFED.

2. It is being developed for online registration to achieve traceability source of Honey and other beehive products on a digital platform.

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

16) Consider the following statements

1. The Indus and Ganges River dolphins are same species but found in different waters.

2. Both Indus and Ganges River Dolphins are classified as 'Endangered' by the International Union for Conservation of Nature (IUCN).

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 respect to *Shaphari Scheme*

1. The scheme certifies hatcheries and farms, for a period of two years, which adopts good aquaculture practices.

2. The scheme was developed by the Marine Products Exports Development Authority (MPEDA).

3. The scheme is based on the United Nations' Food and Agriculture Organization's (UN FAOs) technical guidelines on aquaculture certification.

Which of the statement(s) given above is/are correct?

a) 1 only

b) 2 and 3 only

c) 1, 2 and 3

d) None of the above

18) With respect to *mRNA vaccines*, consider the following statements:

1. They are non-infectious, non-integrating in nature, and degraded by standard cellular mechanisms.

2. They are highly efficacious because of their inherent capability of being translatable into the protein structure inside the cell cytoplasm.

3. They are fully synthetic and do not require a host, like eggs or bacteria, for growth.

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

19) Which of the following statements are correct with respect to *e-SANATA*

1. It is an electronic marketplace providing a platform to connect aqua farmers and the buyers.

2. It is backed by an end to end electronic payment system with National Centre for Sustainable Aquaculture (NaCSA) as an Escrow agent.

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

20) Which of the following statements are correct with respect to *MANAS Platform?*

1. It is a national digital wellbeing platform to augment mental well-being of Indian citizens.

2. It is an initiated by Ministry of Health and Family Welfare and WHO.

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

21) Which of the following statements are correct with respect to *Indian Rhino Vision (IRV) 2020?*

1. It was designed by Rhino Task Force with a target to achieve rhino population to 3,000.

2. Worldwide Fund for Nature India (WWF-India) and Bodoland Territorial Council are part of this initiative.

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

22) Consider the following statements with respect to *System for Assessment, Awareness & Training for the Hospitality Industry (SAATHI)*

1. It aims to assist the hospitality industry in their preparedness to continue operations safely and mitigate risks arising out of the COVID-19 pandemic.

2. It was launched by the Ministry of Tourism in partnership with Quality Council of India (QCI).

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) With respect to Khajuraho Temple, consider the following statements:

1. It is located in the state of Madhya Pradesh and managed by the Archaeological Survey of India (ASI).

2. It was built between 950-1050 AD by the Chandela Dynasty.

3. The Khajuraho group of monuments have been recognised by UNESCO as a World Heritage Site in 1986.

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

24) Consider the following statements with respect to *Startup India Seed Fund Scheme (SISFS)*

1. The fund aims to provide financial assistance to startups which provides proof of concept and a developed prototype.

2. The scheme was launched by the Ministry of Commerce and 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

25) Consider the following statements with respect to *Centralised&Decentralised Payment Systems*

1. Centralised payment systems will include Cheque Truncation System (CTS) centres and Express Cheque Clearing System (ECCS) centres.

2. Decentralised payment systems will include Real Time Gross Settlement (RTGS) System and National Electronic Fund Transfer (NEFT) system.

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

26) Consider the following statements with respect to *Global Forum on TB Vaccine*

1. It is the world's largest gathering of stakeholders striving to develop new vaccines to prevent Tuberculosis.

2. The 5th Global Forum on TB Vaccines will be convened in Toulouse, France with the theme "Advancing TB vaccines in the time of COVID-19".

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

27) Which of the following statements are correct with respect to *Counter Cyclical Capital Buffer*

1. It is calculated as the weighted average of the buffers in effect in the jurisdictions to which banks have a credit exposure.

2. It ensures that central banks can direct bankers to release more credit by freeing up capital, when distress situations arise.

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

28) Consider the following statements with respect to *National Marine Turtle Action Plan*

1. It is launched by National centre for coastal research, under Ministry of Earth Sciences.

2. It aims to promote Inter-sectoral action for conservation of turtle species and improved coordination amongst relevant stakeholders.

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

29) With respect to *Project Kuiper*, sometimes seen in the news recently, consider the following statements:

1. It aims to build Low Earth Orbit (LEO) satellites to provide high-speed and low latency broadband service to under-served regions.

2. It was launched by SpaceX in cooperation with LeoSat.

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) Consider the following statements with respect to *Gangaikondacholapuram*

1. It was established by King Raja RajaChola II after his victorious expedition up to the Gangetic plains.

2. The temple located in Tamil Nadu is dedicated to Lord Vishnu.

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

31) Which of the following Statements are correct with respect to *Saturation of Peripheral Oxygen (SpO2)*?

1. It is a measure of the percentage of haemoglobin saturated with oxygen and can be measured by oximetry or through blood tests.

2. Very low levels of SpO2 can result in very serious symptoms known as hypoxemia.

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

32) Consider the following statements with respect to *Boao Forum for Asia*

1. It is a Non-profit organization initiated by 25 Asian countries and Australia.

2. It is modelled on the World Economic Forum held annually in Davos, Switzerland.

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

33) Which of the following statements are correct with respect to *Codex Alimentarius Commission (CAC)*

1. It aims to protect the health of consumers and ensure fair practices in the food trade.
2. The Membership of the Commission is open to all Member Nations and Associate Members of FAO and WHO.

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

34) *Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE)* is a part of which of the following space mission?

a) NASA's Perseverance Mission
b) Emirates Mars Mission
c) CNSA's Tianwen-1 Mission
d) CNSA's Tianwen-1 Mission

35) With respect to *SVAMITVA Scheme*, consider the following statements:

1. It is a central sector scheme launched by the Ministry of Panchayati Raj.
2. The scheme aims to provide the record of rights to village household owners in rural abadi areas and issuance of Property cards.

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) *Reaching Zero Forum*, sometimes seen in the news recently, is associated with elimination of?

a) AIDS
b) Malaria
c) COVID-19
d) Tuberculosis

37) Consider the following statements with respect to *Blue Nature Alliance*?

1. It is a global alliance of non-profit organization and it to aims to protect 5% of the world ocean in five years.
2. Marine Protection Atlas and World Database on Protected Areas are the two main initiatives of Blue Nature Alliance.

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

38) Consider the following statements with respect to *Oxygen Concentrator?*

1. It is a medical device that concentrates oxygen from ambient air.
2. It can supply up to 50 Litre of oxygen per minute which is 99% pure.
3. It is a cheaper alternative for oxygen cylinders but heavier and non-portable.

Which of the statement(s) given above is/are correct?

a) 1 only
b) 1 & 2 only
c) 1 & 3 only
d) All of the above

39) *E-2025 Initiative* is launched by which of the following organizations?

a) Ministry of Health and Family Welfare
b) Ministry of AYUSH
c) World Health Organization
d) Office of the Principle Scientific Advisor

40) Which of the following space missions involve *Tissue Chips* in space study?

a) ISRO's Gaganyaan
b) NASA's Mars 2020
c) CNSA's Tianwen-1
d) NASA-SapceX Crew-2

41) With respect to *Thotlakonda*, consider the following statements:

1. It is an ancient Buddhist site found at Andhra Pradesh.
2. The site housed remnants of a flourishing monastery, practisingHinayana Buddhism.

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) Which of the following statement(s) is/ are correct with respect to *Unicorn Blackhole?*

1. It is roughly three times the mass of Sun found in milkyway galaxy.
2. It is type of stellar mass black hole, which is formed by the gravitational collapse of a single star.

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

43) Consider the following statements with respect to *'Large Area Certification' (LAC) Scheme?*

1. It is launched by department of Agriculture and Farmers Welfare under its flagship scheme of ParamparagatKrishiVikasYojna.
2. Areas in Arunachal Pradesh is first to get certified as organic under this 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

44) Consider the following statements with respect to *AYUSH 64*

1. It is a poly herbal formulation useful in the treatment of asymptomatic, mild and moderate COVID-19 infection as an adjunct to standard care.
2. It was developed by the Central Council for Research in Ayurvedic Sciences (CCRAS), Ministry of Ayush.

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) *Heavenly Harmony*, sometimes seen in the news recently, is?

a) A part of Permanent Space Station of China

b) The NASA's Mission to study outer solar space

c) The ESA's Mission to study climate change in Earth

d) The ESA's and JAXA's joint mission to the planet Mercury

46) Which of the following statement(s) is/ are *incorrect* with respect to *South Asian Climate Outlook Forum (SASCOF)?*

1. It is a forum of climate experts representing Afghanistan, Pakistan, India, Sri Lanka, Bangladesh, Nepal and Bhutan.
2. Recent report of SASCOF states that above normal rainfall is likely along the Himalayan foothills, central and western India.

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 respect to *GNCT of Delhi (Amendment) Act 2021?*

1. It states that the "government" in the National Capital Territory of Delhi meant the elected government in the city.
2. It empowers Lieutenant Governor (L-G) of Delhi, he/she is not obliged to give his opinion to the State government within a time frame.

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) Which of the following countries are part of *Net Zero Producers Forum*?

   1. India
   2. Norway
   3. Venezuela
   4. United Arab Emirates
   5. United States of America

Select the correct answer using the codes given below:

   a) 2 and 5 only
   b) 1, 3 and 4 only
   c) 3, 4 and 5 only
   d) All of the above

49) *Supply Chain Resilience Initiative (SCRI)* which aims to build resilient supply chains in the Indo-Pacific region was launched by which of the following countries?

   1. India
   2. China
   3. Australia
   4. Sri Lanka
   5. New Zealand

Select the correct answer using the codes given below:

   a) 1 and 3 only
   b) 1, 2 and 4 only
   c) 1, 2 and 4 only
   d) All of the above

50) *Karen* and *Kachin* are two of the bigger minority groups located in?

   a) Nepal
   b) Myanmar
   c) Sri Lanka
   d) Burkina Faso

Answers

1. b

- *Union Minister for Science & Technology Dr.HarshVardhan virtually inaugurated the Alignment and Awareness Event for Publicity of the Department of Scientific and Industrial Research - Promoting Innovations in Individuals, Startups and MSMEs (DSIR-PRISM) scheme at IIT Delhi recently.*

PRISM Scheme

- Promoting Innovations in Individuals, Startups and MSMEs (PRISM) is an initiative of the Department of Scientific and Industrial Research (DSIR), Ministry of Science and Technology.

- It aimed at transforming an individual innovator into a successful technopreneur by promoting, supporting, and funding implementable and commercially viable innovations created for the society.

- Under the initiative, an innovator of Indian nationality - student, professional and common citizen - is provided technical, strategic, and financial assistance by DSIR-PRISM for idea development, prototype development and pilot scaling, and patenting.

- The programme is implemented across various sectors from energy to healthcare to waste management and others.

- The grant is given in two phases: Phase I and Phase II, catering to both the initial innovation stage and the advanced enterprise setup phase through DSIR outreach-cum-cluster innovation centres available throughout India.

- The grant amount in Phase I is around Rs. 2.0 lakhs to Rs. 20.00 lakhs and in Phase II maximum of Rs. 50.00 lakhs.

2. d

- *In a major push towards deep technology and driving the country to become a digitally transformed nation, Atal Innovation Mission (AIM), NITI Aayog has recently launched AIM-PRIME (Program for Researchers on Innovations, Market-Readiness & Entrepreneurship) programme.*

AIM-PRIME Programme

- It is an initiative to promote and support science-based deep-tech startups & ventures across India.

- It was launched by Atal Innovation Mission (AIM), in cooperation with Bill & Melinda Gates Foundation (BMGF).

- The programme will be implemented by Venture Center - a non-profit technology business incubator.

- The program is specifically tailored for the rapid scaling up of deep-tech science ventures in India, providing not just the necessary intellect and support but also the exposure they rightly deserve.

- The program aimed at promoting science based, deep technology ideas to market through training and guidance over a period of 12 months.

- ***Deep technology*** is an outcome of very intense research and development (R&D) with high knowledge content.

3. a

- Ingenuity is a small robotic helicopter located on Mars since February 18, 2021 that is intended to make the first powered atmospheric flight on a planet beyond Earth.

- Part of NASA's Mars 2020 mission, the small coaxial, drone rotorcraft will serve as a technology demonstrator for the potential use of flying probes on other worlds, with the potential to scout locations of interest and support the future planning of driving routes for Mars rovers.

4. c

Vaccine wastage

- It is an expected component of any large vaccination drive, and a vaccine is procured from the maker with an estimated wastage.

- For each vaccine type, the wastage has to be within recommended limits.

- In general, high vaccine wastage inflates vaccine demand and increases unnecessary vaccine procurement and supply chain costs.

Reasons

It is broadly divided into two categories

1. Wastage in unopened vials
2. Wastage in opened vials

Wastage in unopened vials

It can occur due to six broad reasons:

1. if the expiry date has been reached
2. if the vaccine is exposed to heat
3. if the vaccine has been frozen
4. breakage
5. missing inventory and theft
6. while discarding unused vials returned from the vaccination site

Wastage in opened vials

It can occur due to five broad reasons

1. while discarding remaining doses at the end of the session
2. not being able to draw the number of doses in a vial
3. submergence of opened vials in the water
4. suspected contamination
5. poor vaccine administration practices

5. d

- The Union Government has recently released the National Policy for Rare Diseases, 2021.
- The policy was first prepared by the Centre in 2017 but put on hold due to some implementation challenges mainly about cost sharing between Centre and States.

Rare Diseases

- There are 7,000-8,000 classified rare diseases, but less than 5% have therapies available to treat them.
- About 95% rare diseases have no approved treatment and less than 1 in 10 patients receive disease-specific treatment.
- India has said it lacks epidemiological data on the prevalence here and hence has only classified certain diseases as 'rare.'

National Policy for Rare Diseases, 2021

- Accordingly, a 'rare disease' has been categorised into three groups.

Group 1 Diseases

- Financial support uptoRs. 20 lakh under the Umbrella Scheme of RashtriyaArogayaNidhi shall be provided by the Central Government for treatment, of those rare diseases that require a one-time treatment (diseases listed under Group 1).
- Beneficiaries for such financial assistance would not be limited to BPL families, but extended to about 40% of the population, who are eligible as per norms of Pradhan Mantri Jan ArogyaYojana, for their treatment in *Government tertiary hospitals only*.

Group 2 Diseases

- State Governments can consider supporting patients of such rare diseases that can be managed with special diets or hormonal supplements or other relatively low cost interventions (Diseases listed under Group 2).

Group 3 Diseases

- The new policy has absolutely no consideration for Group 3 patients, who require lifelong treatment support.

- The policy states that, keeping in view the resource constraint and competing health priorities, it will be difficult for the Government to fully finance treatment of high cost rare diseases.

- The gap can however be filled by creating a digital platform for bringing together notified hospitals where such patients are receiving treatment or come for treatment, on the one hand, and prospective individual or corporate donors willing to support treatment of such patients.

6. d

Stockholm+50

- It is a high-level meeting that the Government of Sweden plans to hold in conjunction with the 50th anniversary of the first UN conference on the human environment the 1972 Stockholm Conference.

- The aim of Stockholm+50 is to leverage sustainable consumption and production patterns and nature-based solutions in order to achieve climate-neutral, resilient, circular and inclusive economies.

- The 1972 Stockholm Conference on the Human Environment, also known as the Stockholm Conference, was the first UN conference on the environment and was held between 5 and 16 June 1972 in Stockholm.

- The meeting's outcome document the Stockholm Declaration included several principles that are still important for environmental management.

- Another result of the meeting was the establishment of the United Nations Environment Programme (UNEP) and the World Environment Day, held annually on 5 June.

7. a

Digital India Land Records Modernisation Programme

- It is a Central Sector scheme launched in 2008 that has been extended up to 2020-21 at a total cost of Rs. 950 crores.

- The Department of Land Resources (Ministry of Rural development) has proposed a further extension to 2023-24, to complete its original targets as well as expand its ambit with a slew of new schemes.

- It attempts to build upon the commonalities that exist in the arena of land records in various States to develop an appropriate Integrated Land Information Management System (ILIMS) across the country, on which different States can also add State-specific needs as they may deem relevant and appropriate.

- New initiatives have been taken under the program like the National Generic Document Registration System (NGDRS), ULPIN, linking of revenue court to land records, integration of consent based Aadhar numbers with land records etc.

Integrated Land Information Management System (ILIMS)

- The system will contain information on parcel ownership, land use, taxation, location boundaries, land value, encumbrances and many more.

Unique Land Parcel Identification Number (ULPIN)

- It is a number that would uniquely identify every surveyed parcel of land and prevent land fraud, especially in the hinterlands of rural India, where land records are outdated and often disputed.

- The identification will be based on the longitude and latitude coordinates of the land parcel, and is dependent on detailed surveys and geo-referenced cadastral maps.

National Generic Document Registration System (NGDRS)

- It is aimed at providing one Nation one software for registration of documents & properties to 'empower citizens'.

- DILRMP's next phase will include linkage of land record databases with banks.

- This will enhance the service deliveries to the citizens of the country and will also function as inputs to the schemes of the other sectors like Agriculture, Finance, and Disaster Management etc.

8.a

- *ELSA-d the world's first commercial mission to demonstrate a **space debris removal system** was launched recently from the Baikonurcosmodrome in Kazakhstan.*

End-of-Life Services by Astroscale demonstration Mission (Elsa-d)

- It was developed by Astroscale, a Japanese-UK company.

- The mission will be operated from the UK's in-orbit servicing control centre (IOCC) at Satellite Applications Catapult in Harwell, near Oxford.

- ELSA-d is a small satellite designed to find, rendezvous and clamp on to an unwanted satellite.

- It will then push it into the Earth's atmosphere, where it will burn up.

- The removal of space debris is the key to space sustainability, which will ensure that new satellites can be operated without the risk of colliding with old ones.

- The European Space Agency estimates 3,600 working satellites are in orbit, and more than 28,000 pieces of debris are being tracked by the US Space Surveillance Network.

9. d

- Minister of State for Education Sanjay Dhotre has recently attended a consultation meeting of Education Ministers of E9 countries.

- The consultation is the first of a three-phased process to co-create an initiative on digital learning and skills, targeting marginalised children and youth, especially girls.

E9 Initiative

- The initiative aims to accelerate recovery and advance the Sustainable Development Goal 4 agenda by driving rapid change in education systems.

- Spearheaded by the UN, the E9 countries includes Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria and Pakistan.

- The E9 countries will have the opportunity to benefit from this global initiative and accelerate progress on digital learning.

10. c

Non-Fungible Token (NFT)

- A non-fungible token (NFT) is a unit of data on a digital ledger called a block chain, where each NFT can represent a unique digital item, and thus they are not interchangeable.

- NFTs can represent digital files such as art, audio, videos, items in video games and other forms of creative work.

- The NFTs can be bought on an NFT market, it has access to any copy of the original file, however, is not restricted to the owner of the token.

- While the digital files themselves are infinitely reproducible, the NFTs representing them are tracked on their underlying block chains and provide buyers with proof of ownership of the NFTs.

- NFTs can be used to commodify digital creations, such as digital art, video game items, and music files.

- NFTs mostly run on a proof-of-work block chain, which is less energy efficient than a proof-of-stake block chain.

- Indian artists can place their digital assets including art pieces, audio files, videos, and even tweets, for auction over the block chain-based NFT marketplace to earn royalty thereafter.

- Indian cryptocurrency exchange, WazirX has launched a non-fungible tokens (NFT) marketplace for Indian artists and creators.

- Indian artists can place their digital assets including art pieces, audio files, videos, and even tweets, for auction over the blockchain-based NFT marketplace to earn royalty thereafter.

11. c

- In the Union Budget 2021-22, the Finance Minister announced an outlay of INR 1.97 Lakh Crores for the Production-Linked Incentive (PLI) Schemes for 13 key sectors.
- It aims to create national manufacturing champions and generate employment opportunities for the country's youth.

Atmanirbhar Bharat

- PLI Schemes are a cornerstone of the Government's push for achieving an Atmanirbhar Bharat.
- The objective is to make domestic manufacturing globally competitive and to create global Champions in manufacturing.
- The strategy behind scheme is to offer companies incentives on incremental sales from products manufactured in India, over the base year.
- They have been specifically designed to boost domestic manufacturing in sunrise and strategic sectors, curb cheaper imports and reduce import bills, improve cost competitiveness of domestically manufactured goods, and enhance domestic capacity and exports.

Sectors under PLI Scheme

- The first three PLI Schemes were approved earlier in March, 2020 and these were followed by another 10 New PLI Schemes in November, 2020.

Of these, the previous three Schemes have been notified. They are:

1. MeitY - Mobile Manufacturing and Specified Electronic Components
2. D/o Pharmaceuticals - Critical Key Starting Materials (KSMs)/ Drug Intermediates And Active Pharmaceutical Ingredients (APIs)
3. D/o Pharmaceuticals - Manufacturing Of Medical Devices

Out of remaining ten Schemes, six have also been approved by the Cabinet as below:

1. Electronic/Technology Products – MeitY
2. Pharmaceuticals drugs - D/o Pharmaceuticals
3. Telecom & Networking Products - D/o Telecommunications
4. Food Products - Ministry of Food Processing Industries
5. White Goods (ACs & LED) - DPIIT
6. High Efficiency Solar PV Modules - MNRE

Another four Schemes are in process of obtaining Cabinet approval as below:

1. Automobiles & Auto Components - D/o Heavy Industry
2. Advance Chemistry Cell (ACC) Battery - D/o Heavy Industry
3. Textile Products: MMF segment and technical textiles - M/o Textiles
4. Specialty Steel - M/o Steel

12. c

Wolf-Rayet

- They are massive stars and strip their outer hydrogen envelope which is associated with the fusion of Helium and other elements in the massive core.
- The sequence of Wolf Rayet stars dominated by helium and nitrogen emission lines but can contain some carbon are known as WN Stars.
- While WC stars show no nitrogen and are dominated by helium, carbon and oxygen emission lines.
- Recently, the Indian astronomers have tracked a rare supernova explosion and traced it to one of the hottest kinds of stars called 'Wolf-Rayet' or WR stars.

- The long-term monitoring of these transients opens the door to understand the nature of the exploding star as well as the explosion properties.

- Supernovae (SNe) are highly energetic explosions in the universe releasing an enormous amount of energy.

13. a

Supreme Court Portal for Assistance in Court's Efficiency (SUPACE)

- Recently, the Chief Justice of India has launched the Supreme Court Portal for Assistance in Court's Efficiency (SUPACE).

- It is an Artificial Intelligence (AI) portal which is designed to make research easier for judges, thereby easing their workload.

- It is not designed to take decisions, but only to process facts and to make them available to judges looking for an input for a decision.

- It is a perfect blend of human intelligence and machine learning and 'a hybrid system', which works better with human intelligence.

- The portal has ensured that AI only collects all relevant facts & law and makes it available to Judge on their fingertips.

- The AI can process words and figures in a better way and the results only get better with more examples that are given to the system, to process.

- The AI doesn't have access to feelings and emotions and operates in areas of cognition, where understanding takes place only through language and symbols.

14. a

- *Union Education Minister Ramesh Pokhriyal 'Nishank' recently launched the NanoSniffer, the world's first Microsensor-based Explosive Trace Detector (ETD).*

Nanosniffer

- It has been developed by NanoSniff Technologies which is an IIT Bombay incubated startup.

- It can detect explosives in less than 10 seconds and it also identifies and categorizes explosives into different classes.

- It detects all classes of military, conventional and homemade explosives.

- NanoSniffer gives visible &audibles with sunlight-readable color display.

- It is a step towards Prime Minister NarendraModi's vision of a self-reliant India.

- NanoSniffer is a 100 per cent Made in India product in terms of research, development & manufacturing.

- The core technology of NanoSniffer is protected by patents in the U.S. & Europe.

- This affordable device will reduce our dependency on imported explosive trace detector devices.

- It will also encourage other institutions, startups and medium-scale industries to research & develop products indigenously.

15. b

Madhukranti Portal

- It is an initiative of National Bee Board (NBB), Ministry of Agriculture and Farmers Welfare under National Beekeeping & Honey Mission (NBHM).

- The technical and banking partner for development of this digital platform is Indian Bank.

- It is aimed at creating a database of all stakeholders involved in Honey and other hive products' production, sales and marketing chain.

- The online registration/ traceability system for source of Honey & other beehive products will help in checking the quality & source of adulteration of honey.

- The system will also enable consumers/public to know the source of honey and assure quality of the products.

- KVIC Honey mission provides training and 10 bee boxes with live colonies to beneficiaries including farmers, beekeepers and unemployed youth.

16. b

- A Detailed analysis of South Asian river dolphins has recently revealed that the Indus and Ganges River dolphins are not one, but two separate species.

- The study estimates that Indus and Ganges River Dolphins may have diverged around 550,000 years ago.

- The Indus and Ganges River dolphins are both classified as 'Endangered' species by the International Union for Conservation of Nature (IUCN).

17. c

- India exported frozen shrimp worth almost $5 billion in 2019-20 to the U.S. and China — its biggest buyers.

- But a combination of factors had hurt export volumes in recent months, including container shortages and incidents of seafood consignments being rejected because of food safety concerns.

- To bolster confidence in India's frozen shrimp produce, the Centre has kicked off a new scheme *"Shaphari"* to certify hatcheries and farms that adopt good aquaculture practices.

Shaphari Scheme

- The scheme was developed by the Marine Products Exports Development Authority (MPEDA).

- Shaphari is a Sanksrit word which means superior quality of fishery products suitable for human consumption.

- Frozen shrimp is India's largest exported seafood item.

- Certified aquaculture products will help exporters to export their consignments to markets under stringent food safety regulations without the fear of getting rejected.

- The Shaphari scheme is based on the United Nations' Food and Agriculture Organization's technical guidelines on aquaculture certification and will have two components — certifying hatcheries for the quality of their seeds and, separately, approving shrimp farms that adopt the requisite good practices.

- The certification of hatcheries will help farmers easily identify good quality seed producers.

- Those who successfully clear multiple audits of their operations shall be granted a certificate for a period of two years.

- The entire certification process will be online to minimise human errors and ensure higher credibility and transparency.

18. d

- *The Department of Biotechnology (DBT), Ministry of Science & Technology has recently announced that it has approved additional funding towards clinical studies of **India's first of its kind mRNA-based COVID-19 vaccine - HGCO19**, developed by Pune-based biotechnology company Gennova Biopharmaceuticals Ltd.*

- This funding has been awarded under the **Mission COVID Suraksha** - The Indian COVID-19 Vaccine Development Mission by DBT's dedicated Mission Implementation Unit at Biotechnology Industry Research Assistance Council (BIRAC) after multiple rounds of evaluation of all the applications.

Advantages over traditional vaccines

Safety

- Unlike live-attenuated or viral-vectored vaccines, mRNA is non-infectious and poses no concern for DNA integration—mainly because it cannot enter the nucleus which contains DNA.

- Other strategies such as protein-based or inactivated vaccines also require chemicals and cell cultures to produce.

- mRNA is made through a cell-independent process and does not require inactivation; thus, it poses no safety concerns due to contamination with toxic agents.

Efficacy

- mRNA is rapidly degraded in the body, and cells don't readily take up foreign mRNA.

- Recent technology has modified the mRNA molecule to make it more stable and packaged the molecules in fats (called lipids), increasing cell delivery efficiency.

- These advances increase the amount of spike protein produced on your cells, thereby stimulating a more effective immune response.

Production

- They are fully synthetic and do not require a host for growth, e.g., eggs or bacteria.

- It can be quickly designed and scaled up, if necessary.

- The manufacturing is sequence-independent, which makes it highly adaptable to different pathogens.

- The cost is also lower than other platforms and will continue to decrease as the technology expands.

19. c

e-SANATA

- The term e-SANTA was coined for the web portal, meaning Electronic Solution for Augmenting NaCSA farmers' Trade in Aquaculture.

- It is a Digital Bridge to end the market divide and will act as an alternative marketing tool between farmers & buyers by eliminating middlemen.

- The platform provides detailed specification of each product listing and it is backed by an end to end electronic payment system with NaCSA as an Escrow agent.

- National Centre for Sustainable Aquaculture (NaCSA) is an extension arm of Marine Products Export Development Authority (MPEDA).

20. a

MANAS Platform

- The MANAS platform stands for Mental Health and Normalcy Augmentation System.

- It was endorsed as a national program by the Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC).

- It was initiated by the Office of the Principal Scientific Adviser to the Government of India.

- It was jointly executed by,

1. National Institute of Mental Health and Neuro-Sciences (NIMHANS), Bengaluru,

2. Armed Forces Medical College (AFMC), Pune and

3. Centre for Development of Advanced Computing (C-DAC), Bengaluru.

- It is based on life skills and core psychological process, with universal accessibility, delivering age-appropriate methods and promoting positive attitude focusing on wellness.

- The current version has identified two age groups i.e. ages 15 to 20, termed as Mann-Marg, and ages 20 to 35, termed as YoungISTAN.

21. c

Indian Rhino Vision (IRV) 2020

- Under the IRV 2020 program, at least 22 rhinos have been translocated within Assam since 2008.

- It is a joint programme of the Assam Forest Department, Worldwide Fund for Nature India (WWF-India), Bodoland Territorial Council, and the International Rhino Foundation.

- IRV was designed by Rhino Task Force 2005 with a target to achieve rhino population to 3,000 by establishing populations in seven protected areas in Assam by 2020.

- Seven protected areas are:

1. Pabitora Wildlife Reserve,

2. Rajiv Gandhi Orang National Park,

3. Kaziranga National Park,

4. Manas National Park,

5. Laokhowa wildlife sanctuary,

6. Burachapori wildlife sanctuary,

7. DibruSaikhowa wildlife sanctuary.

- It aims to reduce the risk to the rhino population, mainly from poachers by spreading the population in multiple parks with enough habitats to encourage population growth.

22. c

SAATHI (System for Assessment, Awareness and Training for Hospitality Industry)

- It was launched by the Ministry of Tourism in partnership with the Quality Council of India (QCI).

- It aims to assist the hospitality industry in their preparedness to continue operations safely and mitigate risks arising out of the COVID-19 pandemic.

- This initiative is aligned with the Hon'ble Prime Minister's clarion call for "Atmanirbhar Bharat".

- SAATHI Standard will assist in the Unit's preparedness.

- It's not mandatory as of now, however, given the current COVID-19 outbreak, it is imperative that all accommodation units take suitable measures to restrict infection.

23. d

- *The Ministry of Tourism's DekhoApnaDesh Webinar series held its 85th webinar titled "Khajuraho-Temples of Architectural Splendour" recently.*

Khajuraho Temples

- The temples at Khajuraho were built during the Chandella dynasty, which reached its apogee between 950 and 1050.

- Only about 20 temples remain; they fall into three distinct groups and belong to two different religions – Hinduism and Jainism.

- Built in sandstone, each temple is elevated from its environs by a highly ornate terraced platform, or jagati, on which stands the body, or jangha, whose sanctum is topped by a tower, or shikhara, of a type unique to Nagara.

- Khajuraho Group of Monuments is owned by the Government of India and managed by the Archaeological Survey of India through the Ancient Monuments and Archaeological Sites and Remains (AMASR) Act (1958).

24. b

Startup India Seed Fund Scheme (SISFS)

Background

- Funding from angel investors and venture capital firms becomes available to startups only after the proof of concept has been provided.

- Similarly, banks provide loans only to asset-backed applicants. It is essential to provide seed funding to startups with an innovative idea to conduct proof of concept trials.

- DPIIT, Ministry of Commerce and Industry has created Startup India Seed Fund Scheme (SISFS) with an outlay of INR 945 Crore to provide financial assistance to startups for Proof of Concept, prototype development, product trials, market entry, and commercialization.

- It will support an estimated 3,600 entrepreneurs through 300 incubators in the next 4 years.

- This would enable these startups to graduate to a level where they will be able to raise investments from angel investors or venture capitalists or seek loans from commercial banks or financial institutions.

25. c

Centralised&Decentralised Payment Systems

- The centralised payment systems will include Real Time Gross Settlement (RTGS) System and National Electronic Fund Transfer (NEFT) system and any other system as may be decided by RBI from time to time.

- **RTGS -** It enables real-time transfer of funds to a beneficiary's account and is primarily meant for large-value transactions.

- Real time means the processing of instructions at the time they are received and gross settlement implies that settlement of funds transfer instructions occurs individually.

- **NEFT -** It is an electronic fund transfer system in which the transactions received up to a particular time are processed in batches.

- It is generally used for fund transfers of up to Rs. 2 lakh.

- The decentralised payment systems will include clearing houses managed by RBI (Cheque Truncation System (CTS) centres) as well as other banks (Express Cheque Clearing System (ECCS) centres) and any other system as decided by RBI from time to time.

26. b

- *Dr Harsh Vardhan, Union Minister for Health and Family Welfare has recently addressed the 5th Global Forum on TB Vaccine.*

Global Forum on TB Vaccines

- It is the world's largest gathering of stakeholders striving to develop new vaccines to prevent TB.

- It brings together stakeholders from across the spectrum of TB vaccine research and development to share data, concepts, and new approaches to tuberculosis vaccine R&D, as well as promote a global dialogue on the path forward for this critical research.

- *Due to the ongoing coronavirus pandemic, 5th Global Forum on TB Vaccines will be convened virtually from 20 - 22 April 2021*.

- The 6th Global Forum on TB Vaccines will be convened in *Toulouse, France* from 22 - 24 February 2022.

27. c

Counter Cyclical Capital Buffer

- Following Basel-III norms, central banks specify certain capital adequacy norms for banks in a country.

- The CCCB is a part of such norms and is calculated as a fixed percentage of a bank's risk-weighted loan book.

- However, one key respect in which the CCCB differs from other forms of capital adequacy is that it works to help a bank counteract the effect of a downturn or distressed economic conditions.

- With the CCCB, banks are required to set aside a higher portion of their capital during good times when loans are growing rapidly, so that the capital can be released and used during bad times, when there's distress in the economy.

- The CCCB is supposed to be in the form of equity capital, and if the minimum buffer requirements are breached, capital distribution constraints such as limits on dividends and share buybacks can be imposed on the bank.

- Although the RBI had proposed the CCCB for Indian banks in 2015 as part of its Basel-III requirements, it hasn't actually required the CCCB to be maintained, keeping the ratio at zero per cent ever since.

28. b

National Marine Turtle Action Plan

- It is launched by Ministry of Environment Forest and Climate Change (MoEFCC)

- It aims to strengthen and sustain collective and collaborative sea turtle conservation through the monitoring of key sites and a network of partners in the Indian sub-continent

- It highlights actions to be taken for handling stranded animals on the shore, stranded or entangled animals in the sea or on a boat, reducing threats to marine species and their habitats, rehabilitation, etc.

- India has significant nesting and feeding grounds for four species of marine turtles, namely

1. Leatherback (Dermochelys coriacea),

2. Green (Chelonia mydas),

3. Hawksbill (Eretmochelys imbricata)

4. Olive Ridley (Lepidochelys olivacea)

29. a

- *Amazon has secured an agreement with space launch firm, United Launch Alliance (ULA), to support the deployment of its Project Kuiper satellites.*

Project Kuiper

- In July, 2020, Amazon had received approval to build Low Earth Orbit (LEO) satellites to provide high-speed and low latency broadband service to under-served regions.

- US Federal Communication Commission (FCC) allows Amazon to deploy and operate a constellation of 3,236 inter-connected satellites to provide internet.

- In comparison to Amazon's plan, SpaceX is working on blanketing the earth with nearly 12,000 LEO satellites by 2027.

- Apart from SpaceX and Amazon, Facebook, Boeing and Luxemborg-based LeoSat are also planning to enter the LEO-based internet business.

30.d

- *The State Department of Archaeology has made some encouraging finds in the excavation at Maligaimedu near Gangaikondacholapuram, the capital of King RajendraChola I, in Tamil Nadu.*

Gangaikondacholapuram

- It was established by King RajendraChola I (1012-1044 CE) after his victorious expedition up to the Gangetic plains.

- Excavations conducted earlier at Maligaimedu had revealed the remains of a royal palace.

- The previous excavations were carried out at the site on a smaller scale on six occasions when portions of the RajendraChola's palace were unearthed.

- Antiques and other items found in the excavations are on display at a museum at Gangaikondacholapuram.

31.c

Saturation of Peripheral Oxygen (SpO2)

- The body needs there to be a certain level of oxygen in the blood or it will not function as efficiently.

- In fact, very low levels of SpO2 can result in very serious symptoms, this condition is known as hypoxemia.

- There is a visible effect on the skin, known as cyanosis due to the blue (cyan) tint it takes on.

- Hypoxemia, low levels of oxygen in the blood can turn into hypoxia (low levels of oxygen in the tissue).

- This progression and the difference between the two conditions is important to understand.

- Healthy individuals at sea level usually exhibit oxygen saturation values between 96% and 99%, and should be above 94%.

- At 1,600 meters' altitude (about one mile high) oxygen saturation should be above 92%.

- SaO2 (arterial oxygen saturation) value below 90% causes hypoxia, which can also be caused by anemia.

- Defence Research and Development Organisation (DRDO) has developed SpO2 (Blood Oxygen Saturation) supplemental Oxygen Delivery System for soldiers posted at extreme high-altitude areas.

32.c

Boao Forum for Asia (BFA)

- The Boao Forum for Asia is a non-profit organisation, was initiated in 2001 by 25 Asian countries and Australia (increased to 28 in 2006).

- It has provided a high-end platform for political, business and academic leaders in Asia and the world.

- The Forum is committed to promoting regional economic integration and bringing Asian countries even closer to their development goals.

- It has made positive contributions to the promotion of regional economic integration, common development and the building of a more prosperous and harmonious Asia.

- Recently BFA released an annual report on the Asian economy.

33. c

Codex Alimentarius Commission (CAC)

- It is an intergovernmental body established in 1963.

- It is constituted jointly by the UN's Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO), within the framework of the Joint Food Standards Programme.

- It is the body responsible for all matters regarding the implementation of the Joint FAO/WHO Food Standards Programme.

- The Commission meets in regular session once a year alternating between Geneva and Rome.

- Codex Committee on Spices and Culinary Herbs (CCSCH) was formed in 2013 with support of more than a hundred countries under Codex Alimentarius Commission (CAC).

- It has been successful in developing harmonised global Codex standards for spices and herbs.

- It has developed and finalized standards for four spices, viz. dried or dehydrated forms of black/ white/ green pepper, cumin, thyme, and garlic.

34. a

Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE)

- NASA's Perseverance mission was able to produce oxygen from the thin Martian atmosphere for the first time.

- In its first operation since arriving on the Red Planet, the Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE) produced 5 grams of oxygen from carbon dioxide in the Martian atmosphere, enough for an astronaut to breathe for 10 minutes.

- On Mars, carbon dioxide makes up ~96% of the gas in the planet's atmosphere.

- Oxygen is only 0.13%, compared to 21% in Earth's atmosphere, like a tree on Earth, MOXIE inhales carbon dioxide and exhales oxygen.

- It does so by using heat at a temperature of around 800 degrees Celsius, and in the process also produces carbon monoxide as a waste product, which it releases in the Martian atmosphere.

- MOXIE is designed to generate up to 10 grams of oxygen per hour, and is placed inside the Perseverance rover.

- It is the size of a car battery, weighing 37.7 pounds (17.1 kg) on Earth, but just 14.14 pounds (6.41 kg) on Mars.

- MOXIE is only a test model, Future oxygen generators that descend from its technology need to be about 100 times larger to support human missions on Mars.

- A substantial amount of oxygen supply on Mars is essential for crewed missions that plan to go there, not just for astronauts to breathe but for rockets to use as fuel while coming back to Earth.

35. c

Survey of Villages and Mapping with Improvised Technology in Village Areas' (SVAMITVA) Scheme

- It is central sector scheme launched by the Ministry of Panchayati Raj.

- It was launched towards the objectives of socio-economic empowerment of the rural mass and making them self-reliant.

- The scheme aims to provide the 'record of rights' to village household owners in rural abadi areas and issuance of Property cards.

- The pilot phase of the Scheme was implemented during 2020–2021 in States of Maharashtra, Karnataka, Haryana, Uttar Pradesh, Uttarakhand and Madhya Pradesh and few border villages of Punjab & Rajasthan.

- Prime Minister will dedicate the Scheme of SVAMITVA to the entire nation on 24th April 2021.
- The Prime Minister will also launch distribution of e-property cards to 4.09 lakh property owners on this occasion.

36. b

- Dr. Harsh Vardhan, Union Minister of Health and Family Welfare has recently chaired the "Reaching Zero" forum on malaria elimination to celebrate World Malaria Day.
- Every year, 25th April is observed as 'World Malaria Day'.
- This year's theme for the day is "Reaching the Zero Malaria target."

37. b

Blue Nature Alliance

- It is a global partnership of five core partners and few other Non-Profit Organisations launched on April 20, 2021.
- The core partners are Conservation International, The Global Environment Facility, the Pew Charitable Trusts, Minderoo Foundation and Rob and Melani Walton Foundation.
- The alliance aims to target seven ocean locations, they are as follows:
1. Antarctica
2. Seychelles
3. Canada
4. Palau
5. Western Indian Ocean
6. Fiji
7. Tristan da Cunha, an island in the South Atlantic Ocean

Marine Protection Atlas

- It was launched by the Marine Conservation Institute in 2012.
- The atlas was prepared to provide the best available information on marine protection all over the world.
- This will help the marine conservation communities to work together and protect at least 30% of the world ocean by 2030.
- It has been built based on the World Database on Protected Areas.

World Database on Protected Areas

- It holds the database on terrestrial and marine protected areas.
- It was a joint project between IUCN (International Union for Conservation of Nature) and UNEP (United Nations Environment Programme).

38. a

Oxygen Concentrator

- Atmospheric air has about 78 per cent nitrogen and 21 per cent oxygen, with other gases making up the remaining 1 per cent.
- The oxygen concentrator takes in this air, filters it through a sieve, releases the nitrogen back into the air, and works on the remaining oxygen.
- This oxygen, compressed and dispensed through a cannula, is 90-95 per cent pure.
- A pressure valve in concentrators helps regulate supply, ranging from 1-10 litres per minute.
- While it is not as pure as Liquid Medical Oxygen (LMO) (99%), experts say it is good enough for mild and moderate Covid-19 patients with oxygen saturation levels of 85% or above. It is, however, not advisable for ICU patients.

- Oxygen concentrators are the easiest alternatives to cylinders but can only supply 5-10 litres of oxygen per minute (critical patients may need 40-50 litres per minute) and are best suited for moderately ill patients.

- Concentrators are portable and unlike LMO that needs to be stored and transported in cryogenic tankers, need no special temperature.

- And unlike cylinders that require refilling, concentrators only need a power source to draw in ambient air.

- Concentrators are more expensive than cylinders, it's largely a one-time investment.

- Apart from electricity and routine maintenance, there's little by way of operational cost, unlike cylinders that involve refilling costs and transportation.

39. c

E-2025 Initiative

- In 2017, WHO launched the E-2020 initiative to support a group of countries to achieve zero indigenous cases of malaria by 2020.

- Some 21 countries across five regions were identified as having the potential to reach the milestone of eliminating malaria.

- The report 'Zeroing in on malaria elimination' brings out the progress made through the E-2020 initiative of WHO.

- Building on the successes of the E-2020, WHO has identified a new group of 25 countries that have the potential to stamp out malaria within a 5-year timeline.

- The E-2025 countries will receive technical and on-the-ground support by WHO and its partners.

- In return, they are expected to audit their elimination programmes annually, participate in elimination forums, conduct surveillance assessments, and share malaria case data periodically.

- The new countries were selected based on four criteria:

1. The establishment of a government-endorsed elimination plan;
2. Meeting the threshold of malaria case reductions in recent years;
3. Having the capacity of malaria surveillance and a designated governmental agency responsible for malaria elimination; and
4. Being selected by the WHO Malaria Elimination Oversight Committee.

40. d

Tissue Chips

- It is a small device that contains human cells in a 3D matrix represents a giant leap in the ability of scientists to test how those cells respond to stresses, drugs and genetic changes.

- About the size of a thumb drive, the devices are known as tissue chips or organs on chips.

- Tissue Chips are small models of human organs that contain multiple cell types that behave similarly to the human body.

- According to NASA, these chips can potentially speed up the process of identifying safe and effective drugs and vaccines.

- Scientists can use these tissue chips in space to study diseases that affect specific human organs, which would take months or years to develop on Earth.

Crew-2 Mission

- It is the second crew rotation of the SpaceX Crew Dragon and the first with international partners.

- Out of the four astronauts, two are from NASA and two are from the Japan Aerospace Exploration Agency (JAXA) and the European Space Agency (ESA).

- Their central focus during this time will be to continue a series of Tissue Chips in Space studies.

41. c

Thotlakonda Buddhist Site

- Historians and biologists campaign to protect the ancient Buddhist site of Thotlakonda - Home to around 90 species of birds.

- The site is found at a hill of Mangamaripeta Village, BheemunipatnamTaluka of Visakhapatnam District, Andhra Pradesh.

Background

- In 1976, during a helicopter survey by the Indian Navy to set up a naval facility, ruins of the Buddhist site were spotted.

- Subsequently, the entire hill was declared as an area comprising a protected monument under the Andhra Pradesh Ancient and Historical Monument and Archaeological Sites and Remains Act, 1960.

- The area housed remnants of a flourishing monastery, practisingHinayana Buddhism, which was most active for 400 years from 200 BCE to 200 CE.

42. c

Unicorn Black hole

- The black hole is located about 1,500 light years - the distance light travels in a year, 5.9 trillion miles (9.5 trillion km) - from Earth.

- While it may be the closest one to us, it is still far away, by way of comparison, the closest star to our solar system, Proxima Centauri, is 4 light years away.

- There are three categories of black holes.

1. The smallest, like 'the Unicorn,' are so-called stellar mass black holes formed by the gravitational collapse of a single star.

2. There are gargantuan 'supermassive' black holes like the one at our galaxy's center, 26,000 light years from Earth, which is four million times the sun's mass.

3. A few intermediate-mass black holes also have been found with masses somewhere in between.

43. a

Large Area Certification' Scheme

- It provides organic certification under the Large Area Certification (LAC) Scheme of the PGS-India (Participatory Guarantee System) certification programme.

- Department of Agriculture and Farmers Welfare under its flagship scheme of ParamparagatKrishiVikasYojna (PKVY) has launched this unique quick certification programme to harness these potential areas for organic farming.

- All farmers with their farmland and livestock need to adhere to the standard requirements and on being verified get certified en-mass without the need to go under conversion period.

- Certification is renewed on annual basis through annual verification by a process of peer appraisals as per the process of PGS-India.

- As per the established norm of organic production systems, the areas having chemical input usage history are required to undergo a transition period of minimum 2-3 years to qualify as organic.

- During this period, farmers need to adopt standard organic agriculture practices and keep their farms under the certification process.

- On successful completion, such farms can be certified as organic after 2-3 years.

- The certification process also requires elaborate documentation and time to time verification by the certification authorities.

- Whereas under LAC requirements are simple and the area can be certified almost immediately.

- Area in Andaman and Nicobar has been certified as organic, the first large contiguous territory to be done under LAC Scheme.

44. c

- *The scientists of reputed research institutions of the country have found that AYUSH 64 is useful in the treatment of asymptomatic, mild and moderate COVID-19 infection as an adjunct to standard care.*

AYUSH 64

- It is a poly herbal formulation developed by the Central Council for Research in Ayurvedic Sciences (CCRAS), Ministry of Ayush.

- It is worthwhile to mention that initially the drug was developed for Malaria in the year 1980 and now is repurposed for COVID-19.

- AYUSH 64 comprises of Alstoniascholaris (aqueous bark extract), Picrorhizakurroa (aqueous rhizome extract), Swertiachirata (aqueous extract of whole plant) and Caesalpinia crista (fine-powdered seed pulp).

- It is extensively studied, scientifically developed, safe and effective Ayurveda formulation.

- This medicine is also recommended in National Clinical Management Protocol based on Ayurveda and Yoga which is vetted by National Task Force on COVID-19 Management of ICMR.

45. a

- *China has recently launched the main module of its first permanent space station that will host astronauts for the long term.*

- ***Tianhe or the Heavenly Harmony module*** blasted into space atop a Long March 5B rocket from the Wenchang Launch Center on the southern island province of Hainan.

- The launch kicks off the first of 11 missions necessary to complete, supply and crew the station by the end of next year.

Background

- China has launched two experimental modules over the past decade in preparation for a permanent station.

- One, Tiangong-1, which means "Heavenly Palace-1" was abandoned and burned up during an uncontrolled loss of orbit.

- Its successor, Tiangong-2, was successfully taken out of orbit in 2018.

- China began preparations for a space station in the early 1990s as its space programme gained momentum.

- It was excluded from the International Space Station largely due to US objections over the Chinese programme's secretive nature and close military ties.

46. d

South Asian Climate Outlook Forum (SASCOF)

- It consists of expertise from members of the World Meteorological Organisation, Regional Integrated Multi-Hazard Early warning System, Japan Meteorological Agency and Korea Meteorological Administration.

- It is conducted by South Asian nations and the World Meteorological Organisation (WMO) since 2010.

- It prepares consensus seasonal climate information on a regional scale that provides a consistent basis for preparing national level outlooks.

- It serves to interface with user sectors to understand and enhance the use of climate information as orchestrated and supported by the Global Framework for Climate Services (GFCS).

- Recently, the consensus report SASCOF-19 was prepared and released by the South Asian Climate Outlook Forum (SASCOF).

- The report has made a forecast of normal to above normal rainfall over most South Asian countries during the upcoming monsoon season.

47. b

GNCT of Delhi (Amendment) Act 2021

- The Government of National Capital Territory (GNCT) of Delhi (Amendment) Act, 2021, which gives primacy to the Lieutenant Governor (L-G) over the elected government in the city, has come into force.

- It amended the Sections 21, 24, 33 and 44 of the 1991 Act.

- States that the "government" in the National Capital Territory of Delhi meant the Lieutenant-Governor of Delhi.

- It gives discretionary powers to the L-G even in matters where the Legislative Assembly of Delhi is empowered to make laws.

- It seeks to ensure that the L-G is "necessarily granted an opportunity" to give her or his opinion before any decision taken by the Council of Ministers (or the Delhi Cabinet) is implemented.

- It bars the Assembly or its committees from making rules to take up matters concerning day-to-day administration, or to conduct inquiries in relation to administrative decisions.

48. a

- *Saudi Arabia will join the United States, Canada, Norway, and Qatar in forming 'Net Zero Producers Forum' for oil and gas producers.*

Net Zero Producers Forum

- The forum will discuss on how they can support the implementation of the Paris Agreement on climate change.

- The platform will discuss ways to achieve net zero carbon emission targets to limit global warming.

- President Joe Biden has recently unveiled a target to halve the carbon emissions of the US – the world's largest producer of oil and gas – by 2030 from its 2005 levels.

- Mr Biden also announced that by 2024, the US would double its annual assistance to help developing countries cope with the effects of climate change.

- Saudi Arabia plans to add gas and renewables capacity equating to one million barrels of oil per day by 2030, according to the country's Crown Prince Mohammed bin Salman.

- The kingdom is looking to green its power mix and export more barrels of oil.

- It is also committing to lowering emissions and the energy impact of fossil fuels as part of its diversification strategy for 2030.

49.a

- *Trade ministers of India, Japan and Australia has formally launched the Supply Chain Resilience Initiative (SCRI) in a virtual trilateral ministerial meeting recently.*

Supply Chain Resilience Initiative

- It aims to create a virtuous cycle of enhancing supply chain resilience with a view to eventually attaining strong, sustainable, balanced and inclusive growth in the Indo-pacific region

- It was also seen as a move to counter China's dominance of supply chain in the Indo-Pacific region.

50. b

- Ethnic Karen guerrillas has recently said they captured a Myanmar army base near the border with Thailand.

- There is a similar situation in northern Myanmar, where the Kachin minority claims to have captured several government outposts and been the target of air attacks.

- The Karen and the Kachin are two of the bigger minority groups that have been seeking greater autonomy for decades, during which there have been periods of armed conflict punctuated by ceasefires.