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**MAY 2021**  
**G.S PAPER II**

**1. POLITY**

**1.1 Law and Technology**

**Why in news?**

Recently draft vision document of the e-Courts Project has articulated how Covid-19 gives an opportunity to bring change in the justice system.

**What are problems in the justice delivery?**

**1. Pendency of cases:**

- Despite working overtime and rapidly disposing of cases, courts still have not been able to reverse the trend of increasing pendency.
- According to the National Judicial Data Grid, the pendency of cases waiting to be adjudicated upon is 3,81,44,088 at lower courts, 57,51,173 at high courts, and 67,279 at the Supreme Court.

**2. Cost of litigation:**

- A survey was conducted in 2016 to ascertain the cost borne by individuals on litigation.
- The study states that on average, per day, civil litigants spend Rs 497 for court hearings and incurred a loss of Rs 844 due to loss of pay.
- Criminal litigants spend Rs 542 for court hearings and incurred a cost of Rs 902 due to loss of pay.

**3. Ease of doing business:**

- India was ranked 163rd in 'Enforcing Contracts' in the World Bank's Ease of Doing Business rankings 2020.
- A study was conducted in 2020 that covered about 60 lakh cases in 195 district courts with an extensive sample of 13,928 companies.
- It reports that sales revenue, wage bills and profits are negatively associated with longer average duration for case disposal.
- The paper 'Justice Delayed is Growth Denied: The Effect of Slow Courts on Relationship-Specific Industries in India' finds the effect of speedy justice on the economy.
- It is found that if the fraction of trials resolved in less than one year, it could have led to an extra Rs 5.43 lakh crore in the GDP in 2018.

**What does the draft report say?**

- The draft has articulated how Covid-19 has brought with it an unprecedented opportunity for change in the justice system.
- It has recognised the potential of technology in accelerating and transforming access to justice.
- It would use data-led analytics to boost processes, simplify procedures for litigants, lawyers and judicial officers with user-centric design principles.
- It aims to augment digital infrastructure with seamless connectivity across prisons, courts, legal aid authorities via open standards and APIs.
- It seeks to build new governance institutions such as the National Judicial Technology Council for augmenting the judicial-tech ecosystem.

**What further can be done?**

- One, Indian statutes have a legacy of over 150 years, with the Indian Penal Code coming into force in 1862.

- Therefore, obsolete statutes which trigger unnecessary litigation need to be eliminated.
- Two, any new law should have a sunset review clause so that after every few years it is reviewed for its relevance in the society.
- Three, non-compliance with certain legal provisions which don't involve mala fide intent can be addressed through monetary compensation rather than prison time.
- Finally, large number of ongoing litigations in the Indian court doesn't require interpretation of the law by a judge but simply adjudication on facts.
- So, the route of online dispute resolution (ODR) can be adopted which also has the potential for dispute avoidance by promoting legal education and inducing informed choices.
- It can also help in making use of mediation, conciliation or arbitration and resolving disputes outside the court system.

## 1.2 Unwarranted Arrest

### Why in news?

Recently the arrest of an MP from Andhra Pradesh on the charges of sedition is cause of concern due to the misuse of the provision.

### What is Sedition?

- Sedition is an offence defined in **Section 124A IPC** which is often used by the police against the critics of the establishment and prominent dissenters.
- This section is invoked only if there is an imminent threat to public order or there is actual incitement to violence or against the person who excites disaffection against the government.
- It is a colonial-era provision which is used to imprison people for political writings in support of Indian independence which still remains in the statute book.

### Why was the MP arrested?

- The MP was a vocal criticizer of the A.P. Chief Minister and was arrested for the political vendetta.
- The prosecution has claimed that his speeches has caused hatred against communities -MP referred to alleged rampant conversion activities in the state- by invoking Section 153-A or Section 505 of IPC.
- **Section 153A of IPC** deals with the offence of promoting disharmony, enmity or feelings of hatred between different groups.
- This is on the grounds of religion, race, place of birth, residence, language, etc and acts prejudicial to maintenance of harmony.
- **Section 505 of IPC** aims to check and punish the spreading of false and mischievous news intended to upset the public tranquillity.

### Is the arrest justifiable?

- This arrest is unwarranted as the MP is being accused only for speech-based offences and the offences under this section attracts a prison term of only three years.
- In the **Arnesh Kumar case (2014)**, Supreme Court ruled that there is no need to arrest a person for an offence that invites a prison term of seven years and less.
- Further, even sedition, which allows a maximum sentence of life imprisonment, also prescribes an alternative jail term of three years.

### What can we infer from this?

- While the legal process will take its course, it is once again the time to reflect on the need and relevance of this offence to remain on the statute book.
- State governments and various police departments are known for the casual resort to prosecution under this section.
- In most of the cases, this section is used despite the necessary conditions to invoke this section is absent.



- This indicates a poor reflection of the understanding of the law among civil servants everywhere.
- In addition, the terms are vaguely and broadly defined (disaffection includes disloyalty and feelings of enmity).
- This calls for a total reconsideration of this section and recently the Supreme Court decided to revisit its constitutionality.
- Though the judicial review is a welcome move, free speech will be even more protective if this provision is abolished.

### 1.3 Supreme Court's Maratha Quota Verdict

#### Why in news?

A five-judge Constitution Bench of the Supreme Court struck down the Maharashtra law granting reservation to the Maratha community in admissions and government jobs in the state.

#### What is the case on?

- A 2018 law by the Maharashtra government granted quota to the Maratha community.
- The 16% quota in admissions to educational institutions and jobs in public services was later changed to 12% in admissions and 13% in jobs through a 2019 amendment.
- This took the total reservation in the State beyond the 50% ceiling imposed by earlier verdicts.
- The Bombay High Court had upheld the validity of the Maratha reservation in principle.
  - It however ruled that the law could not have fixed the percentage above what was recommended by the State Backward Classes Commission headed by M.G. Gaikwad.
- The Supreme Court has now set aside this ruling.
- It rejected the HC's reasoning that the denial of backward class status to the Marathas had pushed them deeper into social and educational backwardness.

#### What were the key issues addressed?

- The court had framed six questions of law on the Maratha quota issue.
- It unanimously agreed on three of those issues, while the verdict was split 3:2 on the other three.

#### Issue 1: On revisiting the IndraSawhney ruling

- One of the key issues before the court was to examine whether the 1992 landmark ruling in IndraSawhney v Union of India had to be revisited.
- The IndraSawhneyruling by a nine-judge Bench, in which the Mandal Commission report was upheld, laid down two important precedents:
  1. it said that the criteria for a group to qualify for reservation is "social and educational backwardness"
  2. it reiterated the 50% limit to vertical quotas reasoning that was needed to ensure "efficiency" in administration
- However, the court said that this 50% limit will apply unless in "exceptional circumstances."
- The Maratha quota exceeded the 50% ceiling.
- The state governments asked the court for reconsidering the IndraSawhney verdict as it laid down an arbitrary ceiling which the Constitution does not envisage.
- Additionally, in some judgements subsequent to IndraSawhney, the Supreme Court itself had made exceptions to this rule.
- In a unanimous opinion in the recent verdict, the court held that there is no need to revisit the IndraSawhneyruling.
- The court said that the 50% ceiling, although an arbitrary determination by the court in 1992, is now constitutionally recognised.

### **Issues 2&3: On whether the Maratha law can be saved under the exception**

- Since the 50% ceiling is held valid, the court looked into whether the Maratha quota law falls under the “exceptional circumstances.”
- The court also looked into the Maharashtra State Backward Commission report on considering the case as exceptional circumstances.
- The state government noted that the population of backward class is 85% and reservation limit is only 50%.
- So, an increase in reservation limit would qualify as an extraordinary circumstance.
- All five judges in the present bench disagreed with this argument.
  - “The Marathas are dominant forward class and are in the main stream of National life. The above situation is not an extra-ordinaryone.”

### **Issues 4, 5 & 6: On state’s power to identify SEBCs, and 102nd Amendment**

- The Constitution (102nd Amendment) Act, 2018 gives constitutional status to the National Backward Classes Commission.
- The Amendment also gives the President the powers to notify backward classes.
- Several states raised questions on the interpretation of the Amendment and argued that it curtails their powers.
- The Bench now unanimously upheld the constitutional validity of the 102nd Amendment.
- However, it differed on the question whether it affected the power of states to identify socially and economically backward classes (SEBCs).
- The Centre emphasized that the state government would have their separate list of SEBCs for providing reservation in state government jobs and education.
- On the other hand, Parliament will only make the central list of SEBCs which would apply for central government jobs.
- However, the Supreme Court held the following:
  - ❖ The final say in regard to inclusion or exclusion (or modification of lists) of SEBCs is firstly with the President.
  - ❖ And thereafter, in case of modification or exclusion from the lists initially published, with the Parliament.
  - ❖ In the task of identification of SEBCs, the President shall be guided by the Commission set up under Article 338B.
  - ❖ Its advice shall also be sought by the state in regard to policies that might be framed by it.
  - ❖ If the commission prepares a report concerning matters of identification, such a report has to be shared with the state government.
  - ❖ The state government is bound to deal with it, in accordance with provisions of Article 338B.
  - ❖ However, the final determination culminates in the exercise undertaken by the President.
- The majority opinion on this aspect also said that–
  - the identification of SEBCs will be done centrally
  - state governments will retain power to determine the extent of reservation and make specific policy in the spirit of “cooperative federalism”
- This raises a question:
  - How does this impact interventions by other states to provide reservations for other communities, for example Jats in Haryana and Kapus in Andhra?
- The Court has said that now the National Backward Classes Commission must publish a fresh list of SEBCs, both for states and the central list.



- The Commission set up under Article 338B shall conclude its task expeditiously, and make its recommendations.
- After considering this, the President shall expeditiously publish the notification containing the list of SEBCs in relation to states and UTs, for the purpose of the Constitution.
- Till the publication of the notification, the existing lists operating in all states and UTs, and for the purposes of the Central Government and central institutions, will continue to operate.

#### **What is the significance?**

- In striking down the separate reservation, the Supreme Court has underscored the importance of adhering to the 50% limit on total reservation.
- It has also upheld the need to justify any excess by showing the existence of exceptional circumstances.
- The Court has not only found no merit in the Maratha claim to backwardness but also said the community is adequately represented in public services.

#### **1.4 State Governor-Regime Disagreement**

##### **What is the issue?**

- West Bengal Governor Jagdeep Dhankhar made a visit to areas hit by post-poll violence in Cooch Behar.
- In this context, it is imperative to understand if this would constitute a transgression of the bounds of constitutional propriety.

##### **What are the recent disagreements?**

- Governor Dhankhar has been a habitual critic of the Mamata Banerjee (Chief Minister) regime in West Bengal.
- He has been seen ignoring the principle that constitutional heads should not air their differences with the elected regimes in public.
- As recently as December 2020, Ms. Banerjee had appealed to the President to recall the Governor.
- This was for political statements that she believed were being made by him at the behest of the BJP-led Union government.

##### **What is the larger concern in this regard?**

- The norms of representative government ought to be a natural restraint on the Governor's gubernatorial tendency to breach limitis.
- A former West Bengal Governor, Gopalkrishna Gandhi, came in for some criticism for setting aside the restraints of constitutional office.
- He was criticised for expressing "cold horror" at the police firing that left 14 protesters dead at Nandigram in 2007.
- So, the gubernatorial office ought not to be an impediment to the Governor yielding to the moral urge to condemn incidents of rare enormity.
- But, the larger principle that the Governor should not offer public comment on situations best handled by the representative regime has to be upheld.
- In the case of Mr. Dhankhar, what worsens his persistent criticism of the TMC regime is the congruency between his words and the interests of the BJP.

##### **What is the right way forward?**

- Post-poll celebrations in West Bengal degenerated into triumphalism and attacks on the losing side.
- Post-election violence is something that should not be witnessed at all in an electoral democracy.
- The onus is on Ms. Banerjee to restore order and end the violence.
- This should be the case even if she believed that the extent of the violence was being exaggerated by the Opposition.



- On the other hand, regardless of one's view of a regime's inaction, there should be no departure from constitutional prescriptions of governor's powers.
- Any advice or warning the Governor wants to give to the elected government ought to be in private and in confidence, and not in public.

### 1.5 Restructuring the Tribunals System - National Tribunals Commission

#### What is the issue?

- The Centre has passed the Tribunals Reforms (Rationalisation and Conditions of Service) Ordinance 2021.
- With the ordinance being challenged in the Supreme Court, here is an overview on its various elements.

#### What is the objective?

- Through the ordinance, the Centre has abolished several appellate tribunals and authorities.
- It has transferred their jurisdiction to other existing judicial bodies.
- The tribunals abolished include the Film Certification Appellate Tribunal.

#### What are the concerns?

- The Ordinance has met with sharp criticism for bypassing the usual legislative process.
- It was also passed without any stakeholder consultation.
- No judicial impact assessment was conducted prior to abolishing the tribunals.
- This goes against the Supreme Court's direction in *Roger Mathew v. South Indian Bank (2019)*.
- The Ordinance has incorporated the suggestions made in *Madras Bar Association v. Union of India (2020)*.
- This applies to the composition of a search-cum-selection committee and its role in disciplinary proceedings.
- But, the ordinance has also fixed a four-year tenure for Chairpersons and members of tribunals.
- This has disregarded the court's direction for fixing a five-year term.
- Further, the Centre is yet to constitute a National Tribunals Commission (NTC).
- The idea of an NTC was first mooted in *L. Chandra Kumar v. Union of India (1997)*, but it has still not been constituted.

#### What is the NTC and what are its roles and responsibilities?

- The NTC would ideally take on some duties relating to administration and oversight.
- It could set performance standards for the efficiency of tribunals and their own administrative processes.
- Importantly, it could function as an independent recruitment body.
- This is to develop and operationalise the procedure for disciplinary proceedings and appointment of tribunal members.
- Giving the NTC the authority to set members' salaries, allowances, and other service conditions, subject to regulations, would help maintain tribunals' independence.
- Administrative roles of the NTC include providing support services to tribunal members, litigants, and their lawyers.
- For this purpose, it would need to be able to hire and supervise administrative staff.
- It will also have to consolidate, improve, and modernise tribunals' infrastructure.

#### What is the significance of NTC?

- A key rationale for demanding the NTC is the need for an authority to support uniform administration across all tribunals.
- The NTC could therefore pave the way for the separation of the administrative and judicial functions carried out by various tribunals.

- A 'corporatised' structure of NTC with a Board, a CEO and a Secretariat will allow it to scale up its services.
- It could thus provide requisite administrative support to all tribunals across the country.

#### **Why is legal backing for NTC essential?**

- Developing an independent oversight body for accountable governance requires a legal framework that protects its independence and impartiality.
- Where the institutional design is not properly conceived, partisan interests can twist the law to serve political or private interests.
- In India, executive interference in the functioning of tribunals is often seen in matters of appointment and removal of tribunal members.
- It is also evident in provision of finances, infrastructure, personnel and other resources required for day-to-day functioning of the tribunals.
- Therefore, the NTC must be established vide a constitutional amendment.
- Or, it should be backed by a statute that guarantees it functional, operational and financial independence.

### **1.6 Bypassing Political Leadership - Centre-State Relations**

#### **What is the issue?**

- The Centre has a duty not to bypass political leadership in dealing with States.
- But two recent developments have raised concern that the Centre wants to give direct instructions to officials functioning under elected State regimes.

#### **How important is Centre's role?**

- India is a 'federal country with strong centralising features.'
- A major responsibility for the Centre is to maintain the balance, as well as mutual respect, between political structures at the central and State levels.
- In particular, it is an obligation of the Centre to refrain from bypassing the elected leadership while dealing with States.

#### **What are the recent events?**

- Prime Minister Narendra Modi has held two virtual meetings with district magistrates and State officials to review the COVID-19 situation.
- Union Education Minister Ramesh Pokhriyal held a virtual meeting with State Secretaries in charge of education.
- This was on the National Education Policy, and related matters such as the conduct of Class XII examinations.
- Such meetings are usual and help get some feedback from the field across India.
- But, it is quite unusual for leaders in the central political executive to bypass their counterparts in the States.
- The Tamil Nadu Minister for School Education took the right stand by not deputing any official to represent the State in Mr. Pokhriyal's interaction.
- The idea was not to boycott the meeting, but to say the Minister ought to have been included in a discussion on the NEP.
- Likewise, West Bengal CM Mamata Banerjee highlighted that Chief Ministers felt humiliated when all of them were not allowed to speak to the PM in a virtual interaction.

#### **Is this the first time?**

- The Prime Minister addressing district magistrates, or collectors, does have a precedent.
- Former PM Rajiv Gandhi addressed the heads of the district administration in Uttar Pradesh on the issue of Panchayati Raj.
- The defence then was that such direct interactions were permissible under the Constitution, citing Articles 256 and 257.

- These provisions stipulate that the States are obliged to comply with laws made by Parliament.
- They also allow some directions from the Union government.

#### **What is the concern then?**

- There is also scope for resentment that the elected representatives of the States are being bypassed.
- This is especially true if the Prime Minister belongs to one party, and the officials addressed are from a State run by another.

#### **What is the way forward?**

- In the present case, it is true that the Centre has a major role in the pandemic response.
- The Disaster Management Act has been invoked to specify guidelines on lockdowns and relaxations and to ensure smooth medical supplies.
- However, in the larger interest, it is better if events and discussions are held without undermining the political structures at the States.

### **1.7 Outdated Nature of Bureaucracy**

#### **What is the issue?**

- Despite the efforts of all public institutions, bureaucracy has emerged as a major concern for the ineffective response to the COVID-19 crisis.
- This inadequacy is the reflection of the outdated nature of public bureaucracy, and its high time that bureaucracy is overhauled.

#### **How does traditional bureaucracy work?**

- In the 21st century, democratic countries are still relying on traditional bureaucracies.
- They perform primarily the public policy formulation and implementation roles.
- This traditional bureaucracy/Weberian bureaucracy still prefers a generalist over a specialist.
- A generalist officer (IAS and State civil service officials) is deemed an expert and as a result, a superior.
- Traditional bureaucracy is still stuck with the leadership of position over leadership of function.
- Under this, bureaucracy has become an end in itself rather than a means to an end.
- Further, the rigid adherence to rules has resulted in the rejection of innovation.

#### **How has it performed during the COVID-19 crisis?**

- Under the above structure, specialists in every government department have to remain subordinate to the generalist officers.
- The COVID-19 pandemic has exposed this weakness.
- Healthcare professionals who are specialists have been made to work under generalist officers.
- The policy options have been left to the generalists when they should be in the hands of the specialists.
- The justification was that the generalist provides a broader perspective compared to the specialist.
- Also, under rigid adherence to rules, COVID-19 aid got stuck in cumbersome clearance processes even during the pandemic.

#### **What is the alternative?**

- Leadership of function is when a person has expert knowledge of a particular responsibility in a particular situation.
- The role of the leader is to explain the situation instead of issuing orders.
- Every official involved in a particular role responds to the situation.
- They do not rely on some dictation from someone occupying a particular position.

### Is New Public Management the right choice?

- The reform often suggested in India is new public management (NPM).
- NPM as a reform movement promotes privatisation and managerial techniques of the private sector.
- This is seen as an effective tool to seek improvements in public service delivery and governance.
- But this is not a viable solution, not the least in India where there is social inequality and regional variations in development.
- It renders the state a bystander among the multiple market players with accountability being constantly shifted, especially during a crisis.
- COVID-19 too has shown that the private sector has also failed in public service delivery.

### What is appropriate for India?

- The most appropriate administrative reform is the model of new public governance.
- This model is based on collaborative governance.
- Here, the public sector, private players and civil society, especially public service organisations (NGOs), work together for effective public service delivery.
- There is no domination of public bureaucracy as the sole agency in policy formulation and implementation.
- As part of new public governance, a network of social actors and private players would take responsibility in various aspects of governance.

## 1.8 Lakshadweep Administrator Row

### Why in news?

- Praful K. Patel, a BJP politician from Gujarat, was appointed as Administrator in Lakshadweep in December 2020.
- The draft Lakshadweep Development Authority Regulation 2021 was introduced recently. The proposals have led to many concerns.

### What is the controversy over the Administrator?

- Mr. Patel is the first politician to become the Administrator of Lakshadweep.
- Since his arrival in Lakshadweep, he has demonstrated a unique disregard for the people's concerns and priorities.
- In March 2021, the Mumbai police named Mr. Patel as an accused in a case.
- It was related to the death by suicide of seven-time Dadra and Nagar Haveli MP Mohan Delkar.
- Mr. Patel was named in the suicide note.

### What are the key provisions in the draft?

- The draft Lakshadweep Development Authority Regulation 2021 gives sweeping powers to the Administrator.
- It offers power to take over land and forcibly relocate people, and proposes harsh punishment to those who resist.
- The consumption or sale of beef, a part of the food habits of many, could be an offence punishable by 7 years in prison.
- Those who have more than two children cannot contest panchayat elections.
- Anyone could be held in prison without reason up to a year, under a new Goonda Act; in a place that has a very low crime rate.
- The traditional livelihood of fishing communities has been impeded by the regulations that deny them access to coastlines.
- Their sheds on the coastal areas have been demolished, saying they violated the Coast Guard Act.
- Dairy farms run by the administration have been shut.

### What are the concerns?

- The changes introduced come as a serious threat to the people of Lakshadweep and the fragile ecosystem.
- There is clear absence of any administrative rationale or public good in the above arbitrary measures.
- There are thus fears of other motivations.
- Commercial interests could be at play.
- The land that inhabitants are forced to part with could be transferred to buyers from outside.
- There could also be ill-advised political plans to change the demography of the islands.

### What is the larger priority?

- Lakshadweep is an archipelago of 36 islands totalling 32 square kilometres in the Arabian Sea.
- It has had an idyllic existence as a Union Territory (UT), with a population of around 70,000.
- The rationale for carving out UTs as administrative units is to protect the unique cultural and historical situations of their inhabitants.
- This being under threat, people have risen in protest.
- But far from listening to them, the Administrator seems insistent on his plans.
- The Centre is inverting its responsibility to protect into a licence to interfere.
- The Centre should recall the Lakshadweep Administrator and drop his ill-conceived plans.
- The territory and its ecology should be protected and the islanders should be reassured.

## 1.9 MeitYm Warning on WhatsApp Privacy Policy

### Why in news?

- The Ministry of Electronics and Information Technology (MeitY) has warned WhatsApp once again to roll back its latest update in privacy policy.
- This time, the Ministry has also warned of legal action if it does not get a satisfactory reply within a specified time (May 25, 2021.)

### What is the recent privacy policy of WhatsApp?

- WhatsApp, early in 2021, updated its privacy policy.
- Accordingly, WhatsApp users would no longer be able to stop the app from sharing data (such as location and number) with its parent Facebook.
- Deleting their accounts altogether is the only option to avoid this.
- WhatsApp initially proposed a February 8, 2021 deadline.
- But an intense backlash against this decision, triggered users moving to rival platforms such as Signal.
- This forced WhatsApp to push the update to May 15, 2021.
- Eventually, it decided not to enforce this as well, preferring to “follow up with reminders to people over the next several weeks”.
- WhatsApp has over 2 billion users in the world, about half a billion of whom are in India, and who use it for free.
- Its privacy updates are designed to make the business interactions that take place on its platform easier while also personalising ads on Facebook.
- That is how it will have to make its money.

### What has the Ministry said now?

- The changes to privacy policy and the manner of introducing them undermine the sacrosanct values of informational privacy, data security and user choice for Indian users.

- Indians depend on WhatsApp to communicate.
- It is thus irresponsible for WhatsApp to impose unfair terms and conditions on Indian users.
- Particularly, this discriminate against Indian users vis-à-vis users in Europe.
- MeitY has said it would pursue all legal options available to it “to protect the sovereign rights” of Indian citizens.
- This marks the first time that the Ministry has warned WhatsApp of legal action.

#### **What were the earlier exchanges?**

- Communication between the IT Ministry and WhatsApp on the issue of the updated privacy policy has been going on since January 2021.
- The Ministry had sent its first letter on the issue to Will Cathcart, the global Chief Executive Officer of WhatsApp.
- In it, the Ministry had said the updated policy and the subsequent changes enabled WhatsApp and other Facebook companies “to make invasive and precise inferences about users”.
- The Ministry had then sent a set of 14 questions to WhatsApp.
- The questions were on –
  - i. the various ways in which it collected data
  - ii. the permissions and consents it obtained from domestic users
  - iii. whether they were different from what it collected from users in other parts of the world
- The Ministry had also sought to know whether the company conducted any profiling and what the nature of such profiling was.
- There are two government warnings and at least two court cases in this regard, making it hard for WhatsApp to proceed with the changes.

#### **What is the contention now?**

- It is to be noted that Europe’s citizens are protected by strong data laws - General Data Protection Regulation or GDPR.
- There is no Indian equivalent of such laws.
- India must have data protection laws in place before acting against WhatsApp.
- WhatsApp has reportedly said in its affidavit that it is being singled out.
- Its policy is not different from those of private apps such as Google, BigBasket, Koo, as well as public apps such as AarogyaSetu, Bhim, IRCTC, and others.
- Moreover, if WhatsApp is ready to take the risk of users abandoning it, the government intervening in the process is illogical.
- The Ministry’s intermittent approach to issues concerning the user may do more harm to India’s approach to data protection and freedom than anything else.

## **2. GOVERNMENT ACTS & POLICIES**

### **2.1 Revising the National Electricity Policy**

#### **Why in news?**

The government has decided to revise the National Electricity Policy (NEP) by invoking Section 3 of the Electricity Act, 2003.

#### **What is the move about?**

- The 2003 Act mandates that the central government shall prepare the NEP in consultation with the state governments and the Central Electricity Authority.

- The government has constituted a committee now.
- It would finalise the draft NEP which has been circulated, after seeking views of stakeholders.
- The first NEP was formulated in 2005.

#### **What progress has happened since 2005?**

- Between 2005 and 2021, generation capacity (inclusive of renewable capacity) has gone up by about 251 GW.
- The renewable generating capacity has gone up to 94 GW (from wind, solar, small hydro and biomass) from almost nothing.
- This led to about 10% of generation from renewable sources.
- An additional 2.5 lakh circuit-km of transmission lines (above 220 kV) were added during this time.
- Per capita consumption has almost doubled from 630 units to approximately 1,200 units today.
- Besides, peak and energy shortages have come down from double digit figures to about half a percentage point.
- Rural electrification is almost complete with near 100% electricity access to households (not necessarily 24 hours supply).

#### **Why is revising the NEP essential?**

- The government did not bother to revise its NEP for almost 16 years.
- The government keeps pointing to the fact that peak and energy shortages have come down drastically implying that all is well.
- But the reality is quite to the contrary.
- The situation of excess supply is illusory.
- This is because the demand has not grown at the rate it should have because of the economic downturn since the last couple of years, even before the pandemic.
- Distribution companies (discoms) have accumulated outstanding of over Rs. 6 lakh crore.
- And this seems to be going up year after year despite all government programmes to improve distribution infrastructure and restructuring of loans.
- There are other areas to be addressed too such as solar power.
- India could not join the world leaders in the area of solar power despite having the advantage of geography.
- It continues to rely on imports for capital equipment.
- India has been slow in adopting more stringent environment norms for power stations.
- It has done practically nothing on carbon capture and sequestration.
- It has not been able to add to the hydro capacity, which could play a crucial role in balancing the grid with increasing thrust on renewable generation.
- India also has fuel supply issues (coal) and is unable to meet the domestic demand through indigenous mining.

#### **What are the shortfalls to be addressed in the new policy?**

- **Policy statements** - Our policy statements are too verbose and lengthy.
- The first NEP as also the draft circulated now run into several pages, and are not incisive enough or reader-friendly.
- Ideally, policy statements should be crisp and pithy, and should be able to hold on to readers' interest.
- **Effectiveness** – Another issue is regarding the effectiveness of the policy.
- The draft policy has a lot to say on renewable generation, and rightly so, but what is the guarantee that it would be followed.

- While the central government may fix targets on renewable generation capacity, the implementation will mainly be done by private enterprises.
- Now, private enterprises will move according to the investment climate as it exists in states.
- All stakeholders should treat the NEP as mandatory and act accordingly.
- Problems have arisen in the case of the National Tariff Policy (NTP) in the past.
- Certain states have expressed unwillingness to comply with certain sections of this document.
- Incidentally, both the NEP and the NTP emanate from Section 3 of the Act.
- **NEP and NTP** – A fundamental issue is whether there is a need for two separate policy statements, the NEP and the NTP.
- The first NTP was formulated in 2006 with some minor amendments carried out in 2008, 2011 and 2016.
- Both these documents exist concurrently, but they practically run into each other's domain.
- It is not really possible to segregate tariff-related issues from electricity policy in general since they are all interlinked.
- Thus, it would be appropriate to subsume the NTP into the NEP, and tariff would be one of the several issues which would be a matter of electricity policy.
- It will have the benefit of a single holistic policy statement which would take into account all the interlinkages. This will not entail an amendment to the Act.

## 2.2 Digital Media Ethics Code

### Why in news?

The new rules in India for social media platforms and digital news outlets, called the Intermediary Guidelines and Digital Media Ethics Code, came into effect.

### What are the key provisions in the Guidelines?

- The guidelines had asked all social media platforms to set up a grievances redressal and compliance mechanism.
- This includes appointing a resident grievance officer, chief compliance officer (CCO) and a nodal contact person.
- The Ministry of Electronics & Information Technology had also asked these platforms to submit monthly reports.
- It should have details on complaints received from users and action taken.
- A third requirement is for instant messaging apps to make provisions for tracking the first originator of a message.
- Failure to comply with any one of these requirements would take away the indemnity provided to social media intermediaries under Section 79 of the Information Technology Act.

### What protection does Section 79 of the IT Act offer?

- Section 79 says any intermediary shall not be held legally or otherwise liable for any third party information, data, or communication link made available or hosted on its platform.
- This protection shall be applicable if the said intermediary does not in any way, -
  - i. initiate the transmission of the message in question
  - ii. select the receiver of the transmitted message
  - iii. modify any information contained in the transmission
- So the platform should act just as the messenger carrying a message from point A to point B, without interfering in any manner.
- If this is ensured, it will be safe from any legal prosecution brought upon due to the message being transmitted.





- The protection, however, is not granted if the intermediary, despite being notified by the government, does not immediately disable access to the material under question.
- The intermediary must also not tamper with any evidence of these messages or content present on its platform.
- Failing this, it will lose its protection under the Act.
- [In the U.S., Section 230 of the 1996 Communications Decency Act provides Internet companies a similar safe harbour from any content users post of internet platforms.
- It was this provision that enabled companies such as Facebook, Twitter, and Google to become global conglomerates.]

#### **What is the concern now?**

- Social media intermediaries such as Twitter, Facebook, and Instagram have so far not appointed personnel as required under the new rules in India.
- They have also failed to submit monthly reports on action taken on grievances and complaints submitted to them by users.
- Thus, protection under Section 79 of the IT Act will not hold for them.

#### **What happens if the protection is withdrawn?**

- Nothing changes overnight, and social media intermediaries will continue to function as they were.
- People will also be able to post and share content on their pages without any disturbance.
- But, if a tweet, a Facebook post or a post on Instagram violates the local laws, the law enforcement agency can book not only the person sharing the content, but the executives of these companies as well.
- Reading the provisions of the IT Rules in consonance with Section 69(a) of the IT Act suggests that this liability can even be criminal in nature.
- In other words, the CCO (chief compliance officer) can be made to serve a prison term of up to 7 years.
- The absence of the umbrella protection of Section 79 could also lead to situations where employees of the platform may be held liable for no fault on their part.

## **3. SOCIAL JUSTICE**

### **3.1 Expanding the Scope of POCSO Act**

#### **What is the issue?**

- There is growing international jurisprudence around child sexual abuse issues.
- A fundamental defect of POCSO Act in India is its inability to deal with historical cases. It is time to revise the law in this context.

#### **What is historical child sexual abuse?**

- Historical child sexual abuse refers to incidents that are reported late.
- Historical abuse is not just confined to institutions.
- It also includes intra-familial abuse.

#### **Why is delayed reporting justified?**

- It is often difficult for the child to report the offence or offender at the earliest.
- It takes time for the child to recognise what has happened and become confident to report.
- The delay may be due to -
  - i. lack of awareness
  - ii. the trauma caused



- iii. threats from the perpetrator
- iv. fear of public humiliation
- v. absence of trustworthy confidant

- Another reason is to do with the accommodation syndrome.
- [The child keeps the abuse as a secret because of the fear that no one will believe the abuse, leading to accommodative behaviour.]

#### **What is the legal barrier involved?**

- The Criminal Procedure Code (CrPC) makes it clear that any delay in filing complaint dilutes the efficacy of the prosecution's case.
- It prohibits judicial magistrates from taking cognisance of criminal cases beyond a specific time period.
- Earlier, cases involving child sexual abuse not amounting to rape was defined under Section 376 of the Indian Penal Code (IPC).
- It was classified under the lesser offence of outraging the modesty of a woman (Section 354 of the IPC).
- Any reporting, under Section 354 of the IPC, more than 3 years after the date of incident would be barred by the CrPC.
- So, this renders historical reporting of child sexual offences which took place before 2012 legally implausible.
- [The Protection of Children from Sexual Offences Act (POCSO) came into place in 2012.
- POCSO is the law in India to protect children from offences of sexual assault, sexual harassment and pornography]

#### **What is the need now?**

- The limitation provisions were incorporated into the CrPC to avert delayed prosecution.
- But child sexual abuse cannot be viewed in the same manner as other criminal offences.
- There is thus a compelling need to allow delayed reporting and prosecution in this.

#### **What is the challenge though?**

- A major drawback of delayed reporting is the lack of evidence to advance prosecution.
- It is believed that there would be less than 5% chance for gathering direct physical and medical evidence in such cases.
- India, in particular, suffers from a lack of procedural guidance as to how to prosecute historical cases of child sexual abuse.
- In contrast, the U.K. has issued detailed Guidelines on Prosecuting Cases of Child Sexual Abuse.
- It is dealt with in detail under the Sexual Offences Act of 2003, to assist the police in such cases.

### **3.2 Overcrowded Jails**

#### **Why in news?**

Recently, the judgment of the Supreme Court in a bail petition has offered opportunity to look into the state of affairs of jails.

#### **What is the case about?**

- The imprisonment of a priest with Parkinson's disease and a senior academic suffering from a serious eye infection after contracting COVID-19, has exposed the overcrowded condition in the Talaja jail.
- As a result, the Bombay High Court has granted hospitalisation and medical check-ups to the prisoners but their pleas for interim medical bail was deferred.
- There is also a stark disparity between what the jail authorities say about the jail conditions and the evidence placed by the advocates for the undertrials.
- The conditions in several Indian prisons are pathetic with zero or next to zero monitoring by committees.



- Jails are overcrowded, have poor hygiene conditions, and has little or no statutory monitoring.

#### **What was the verdict of the court?**

- The SC urged the courts to actively use the option of house arrest in cases where age, health conditions and antecedents of the accused are a criterion.
- It expressed special concern over the overcrowding of jails — on an average at least 118 per cent higher than the limit.
- Following this order, the Calcutta High Court, in the case of three serving elected officials and ministers of the TMC-led Bengal government, ordered house arrest.
- The court even allowed them to perform some official duties under observation.

#### **What is the global status of house arrest?**

- In Medieval Europe, St Paul at the age of 60 was awarded house arrest for two years where he continued his profession as a tent maker and paid his own rent.
- Galileo Galilei, the Florentine physicist, philosopher and astronomer after a second trial in Rome in 1633 was confined to house arrest for the rest of his life.
- In more recent times in the West, some societies use it post-trial and conviction as confinement with surveillance.
- Elsewhere, house arrest has been used to repress political dissent before trial.

#### **What is the case with India?**

- Only a few governments have evolved any legal understanding around the issue of political prisoners.
- West Bengal has engaged with this issue and, in 1992, passed the West Bengal Correctional Services Act that provides for residence in correctional homes.
- Also, under Section 19(4), it has created a special categorisation of a prisoner as a political prisoner.
- Any offence committed or alleged to have been committed in furtherance of any political or democratic movement is regarded as a political offence.

#### **What can we infer from this?**

- The pandemic has highlighted the inhumane conditions present in the Indian prisons.
- House arrest as a punitive measure has been viewed differently depending on the socio-political context.
- Due to the poor conditions of Indian prisons and the absence of political will in proper monitoring, the option of house arrest must be seen as a positive opportunity.
- The familiarity of the undertrial with her or his place of residence and the ability to get prompt medical attention must surely bend courts towards actively using and implementing this as an option.
- In Independent India, house arrest can be used as a means of restricting movement and ensuring surveillance when an individual or groups of individuals are subject to preventive detention.

## **4. HEALTH**

### **4.1 'One Health' Approach**

#### **What is the issue?**

The battle against COVID-19 should be used as an opportunity to meet India's 'One Health' targets.

#### **What is the "One Health" approach?**

- The approach that acknowledges the interconnectedness of animals, humans, and the environment is referred to as "One Health".

- The father of modern pathology, Rudolf Virchow, emphasised in 1856 that there are essentially no dividing lines between animal and human medicine.
- Studies indicate that more than two-thirds of existing and emerging infectious diseases are zoonotic.
- In other case, they can be transferred between animals and humans, and vice versa, when the pathogen in question originates in any life form but circumvents the species barrier.
- Another category of diseases, “anthropozoonotic” infections, gets transferred from humans to animals.

#### What is the significance now?

- The transboundary impact of viral outbreaks in recent years has further reinforced the need to consistently document the linkages between the environment, animals, and human health.
- These include the Nipah virus, Ebola, Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) and Avian Influenza.
- This concept is ever more salient now as the world continues to grapple with the COVID-19 pandemic.

#### What is India’s framework for “One Health”?

- **Framework** - India’s ‘One Health’ vision derives its blueprint from the agreement between the tripartite-plus alliance comprising –
  - i. the Food and Agriculture Organization of the United Nations (FAO)
  - ii. the World Organisation for Animal Health (OIE)
  - iii. the World Health Organization (WHO) (and)
  - iv. the United Nations Environment Programme (UNEP)
- It is a global initiative supported by the UNICEF and the World Bank under the overarching goal of contributing to ‘One World, One Health’.
- **Initiatives** - In keeping with the long-term objectives, India established a National Standing Committee on Zoonoses as far back as the 1980s.
- Recently, funds were sanctioned for setting up a ‘Centre for One Health’ at Nagpur.
- Further, the Department of Animal Husbandry and Dairying (DAHD) has launched several schemes to mitigate the prevalence of animal diseases since 2015.
- The funding pattern works along the lines of 60:40 (Centre: State), 90:10 for the Northeastern States, and 100% funding for Union Territories.
- Under the National Animal Disease Control Programme, around Rs. 13,000 crore have been sanctioned for Foot and Mouth disease and Brucellosis control
- In addition, DAHD will soon establish a ‘One Health’ unit within the Ministry.
- Additionally, the government is working to revamp programmes that focus on –
  - capacity building for veterinarians
  - upgrading the animal health diagnostic system such as Assistance to States for Control of Animal Diseases (ASCAD)
- In the revised component of assistance to States/UTs, there is increased focus on vaccination against livestock diseases and backyard poultry.
- To this end, assistance will be extended to State biological production units and disease diagnostic laboratories.
- **Rabies** - WHO estimates that rabies (also a zoonotic disease) costs the global economy approximately \$6 billion annually.
- Considering that 97% of human rabies cases in India are attributed to dogs, interventions for disease management in dogs are considered crucial.
- DAHD has partnered with the Ministry of Health and Family Welfare in the National Action Plan for Eliminating Dog Mediated Rabies.

- This initiative is geared towards sustained mass dog vaccinations and public education to render the country free of rabies.

### **What is the impending challenge?**

- Scientific observations suggest that there are more than 1.7 million viruses circulating in wildlife.
- Many of them are likely to be zoonotic.
- This implies that unless there is timely detection, India risks facing many more pandemics in times to come.
- To achieve targets under the 'One Health' vision, efforts are ongoing to address challenges pertaining to –
  - i. veterinary manpower shortages
  - ii. the lack of information sharing between human and animal health institutions
  - iii. inadequate coordination on food safety at slaughter, distribution, and retail facilities

### **4.2 Taiwan's Covid Model**

#### **What is the issue?**

- Due to its proximity to China, Taiwan was expected to be one of the countries most severely affected by the pandemic.
- But given its experience of fighting the 2003 SARS outbreak, Taiwan has dealt and is dealing well with COVID-19; here is an overview on that.

#### **What was Taiwan's initial response?**

- First of all, Taiwan did not ignore the alarms.
- It took seriously the evolving official and unofficial accounts, to form a picture of the emerging disease.
- Authorities used this information to launch enhanced monitoring in December 2019 itself.
- They have tirelessly implemented public health containment measures since Taiwan's first case was detected in January 2020.

#### **What is the mechanism involved?**

- After dealing with SARS, Taiwan established a nationwide infectious disease healthcare network.
- It provides the legal authority for transferring patients with highly contagious diseases to designated facilities.
- This has helped protect health systems and health professionals from being overwhelmed.
- It also allowed most non-Covid-19 health services to continue.

#### **What were the other measures?**

- By acting early and effectively, Taiwan also mitigated the economic impact of Covid-19.
- It implemented flexible adjustments for related quarantine measures for vessels and aircraft.
- This helped fisheries, offshore wind farms, and air transport industries continue operations.
- It ensured maintaining essential international, social, economic, and trade activities.
- Furthermore, public trust and cooperation with the government's response have been key to successfully containing Covid-19.
- In formulating disease control regulations, the government has adhered to the principles of reasonable response, minimum damage, and gradual adoption.
- It also maintained the balance between people's right to know and personal privacy and freedom.
- It upheld the principle of fairness as well as prioritised the protection of disadvantaged groups, including migrant workers.
- Throughout, Taiwan has emphasised the right to health and associated protections and strong opposition to human rights abuses.

### Why is Taiwan's role in COVID handling significant?

- As of April 30, 2021, there had been 1,128 confirmed cases, including 12 deaths, in Taiwan.
- Life and work have continued much as normal for the majority of the population.
- Taiwan's response to Covid-19 has been one of the world's success stories.
- It plays an indispensable role in the global monitoring and early warning systems that detect the threat of emerging infectious disease.
- It has been able to comprehensively participate in and contribute to international Covid-19 supply chain systems, as well as global diagnostics, vaccine, and therapeutics platforms.
- It has made significant longstanding contributions to the international community in public health, disease prevention, and the human right to health.
- This would allow Taiwan to work with the rest of the world.
- These, thus, validate Taiwan's demand to be included in WHO and its meetings, mechanisms, and activities.

### 4.3 Indian Coronavirus Variant of Global Concern

#### Why in news?

The World Health Organization (WHO) has classified a coronavirus variant first identified in India as a "global variant of concern".

#### What is the variant?

- Indian variant **B.1.617** and its family of related coronaviruses have been categorised as a Variant of Concern (VOC) by the WHO.
- B.1.617 was classified as a variant under investigation (VUI) by authorities in the UK earlier in May 2021.
- They requested India to send samples of the B.1.617 strain to carry out wider studies on it and determine how effective existing vaccines are against it.
- While there are several so-called 'variants of interest' (VOI), only three, other than the B.1.617, have been categorised as VOC:
  1. the U.K. variant (B.1.1.7)
  2. the South Africa variant (B.1.351)
  3. the Brazilian variant (P2)

#### How are variants classified?

- As per WHO, a variant of interest (VOI) becomes a variant of concern (VOC) if, through a comparative assessment, it has been demonstrated to be associated with -
  - i. increase in transmissibility,
  - ii. detrimental change in COVID-19 epidemiology,
  - iii. increase in virulence,
  - iv. change in clinical disease presentation, (or)
  - v. a decrease in effectiveness of public health and social measures or available diagnostics, vaccines, therapeutics
- Alternatively, a variant may be classified as a VOC by the WHO in consultation with the WHO SARS-CoV-2 Virus Evolution Working Group.
- The US Centers for Disease Control and Prevention (CDC) defines a variant of interest (VOI) as a variant with -
  - i. specific genetic markers that have been associated with changes to receptor binding,
  - ii. reduced neutralization by antibodies generated against previous infection or vaccination,
  - iii. reduced efficacy of treatments, potential diagnostic impact, (or)



- iv. predicted increase in transmissibility or disease severity
- Usually, in countries that detect emergent variants, it is the health authorities there who flag them as potential VOC.
- **India** - Unlike the US's CDC or Public Health England, India still does not have a classification criterion for labelling viruses as variants of interest, or concern.
- It was in early April that this variant became formally classified as a lineage, B.1.617.
- It was only after the U.K.'s labelling it as a VOC that it was called so by health authorities in India.

#### **How do variants of a virus emerge and why?**

- Variants of a virus have one or more mutations that differentiate it from the other variants that are in circulation.
- While most mutations are deleterious for the virus, some make it easier for the virus to survive.
- Essentially, the goal of the virus is to reach a stage where it can cohabit with humans because it needs a host to survive.
- This means, any virus is likely to become less severe as it keeps evolving.
- But, in this process, it can attain some mutations that may be able to escape the body's immune response or become more transmissible.
- The SARS-CoV-2 virus is evolving fast because of the scale at which it has infected people around the world.
- High levels of circulation mean it is easier for the virus to change as it is able to replicate faster.

#### **What is the case with B.1.617 variant?**

- The B.1.617 variant of the virus has two mutations referred to as E484Q and L452R.
- Both are separately found in many other coronavirus variants, but they have been reported together for the first time in India.
- The L452R mutation has been found in some other VOIs such as B.1.427/ B.1.429.
- These are believed to be more transmissible and may be able to override neutralising antibodies.
- The WHO has said that laboratory studies suggest that samples from individuals who had natural infection may have reduced neutralisation against variants which have the E484Q mutation.

#### **Is B.1.617 the reason for the current surge in India?**

- Indian government recently said that this variant also called the "double mutant variant" could be linked to a surge in the cases of coronavirus seen in some states.
  - In March 2021, nearly 20% of the cases from Maharashtra (consistently been among the most afflicted States) were being linked to the variant.
- This admission was a change in the Centre's previous stance.
  - Earlier it had said that the strain was not identified in enough samples to establish a sufficient link to the current surge.
- Even so, the government now said that the link was not "fully established".

#### **Why are classifying variants significant?**

- Based on the prevalence, some variants may go on to become the dominant strain in a region or multiple geographies.
- So, vaccine companies have to check whether their vaccines continue to be effective. Such studies have already begun in India.
- Even some of the emerging variants do seem to be better at evading antibodies.
- So, along with monitoring reinfections, classifying variants must be seen as a crucial health response.



#### 4.4 Addressing the Vaccine Shortage

##### Why in news?

The massive vaccine shortage in the country has mooted the idea of compulsory licencing.

##### What is the current situation?

- The second wave of the COVID-19 pandemic has claimed large number of lives and the precious lives of the citizens are dependent on the vaccine manufactures.
- According to government data till April 26,2021, only 13.5 crore vaccine doses (9% of the Indian population) were administered and it is reported that the country is likely to face a vaccine shortage.
- Now the Supreme Court has highlighted the unconstitutionality of the new COVID vaccine policy- allowing vaccine manufacturers to fix prices which can lead to discrimination and vaccine inequity.
- It has directed the Centre to consider invoke compulsory licencing of drugs and vaccines under the Patents Act, 1970.

##### What is Compulsory Licencing?

- Compulsory Licensing (CL) allows governments to license third parties (other than the patent holders) to produce and market a patented product or process without the consent of patent owners.
- It is regulated under the **Indian Patent Act, 1970**.
- The application for compulsory license can be made any time after 3 years from date of sealing of a patent.
- The following conditions should be fulfilled by the applicant:
  - Reasonable requirements of public have not been satisfied;
  - Patented invention is not available to public at a reasonably affordable price;
  - Patented inventions are not carried out in India.
- According to **Section 92 of the Act**, CL can also be issued suo motu by the Controller of Patents.
- But this should be based on the notification issued by the centre if there is a case of either a national emergency or extreme urgency or for public non-commercial use.

##### What can the centre do now?

- The centre can address the present drug and vaccine shortage through its immense powers it has under the patents law.
- If it declares national emergency or extreme urgency, then willing company to manufacture the COVID vaccine can make an application to the Controller General of Patents.
- This secures a compulsory licence and the licence-holder can then go ahead and use the patented technology to manufacture the vaccine or the drugs.
- Large number of players in the market will lower the financial burden on the government and ensures dynamism in the COVID drugs and vaccines market.
- Also, this will ensure that the drug or vaccine gets cheaper and supplied adequately to meet the growing demand.
- However, there is a concern of potential litigation due to which other manufacturers are unwilling to seek compulsory licences.

##### How can this issue be addressed?

- Such concerns have to be alleviated by the Centre due to the gravity of the current situation.
- The patent holders can be adequately compensated by fixing a reasonable licence fee.
- The right to life of the people should be of prime importance over any commercial interests of the companies.
- Even the Russian and Hungarian governments have issued compulsory licences for remdesivir and made it available for cheaper prices to the public.





### **What can we infer from this?**

- COVID-19 has disproportionately high impacts on the poorest and most marginalised and leaving patients to the fluctuations of the market where Big Pharma determines the prices is arbitrary.
- To reduce the numbers of cases and deaths, it is necessary that even the poorest of the poor have access to treatment (including access to oxygenated beds, ICU & ventilators) and free vaccines.
- Even the Supreme Court has said that Centre should procure all vaccines and negotiate the price with the vaccine manufacturers.
- Therefore, it is incumbent on the Central Government to ensure that the vaccines are available to all free of cost following the universal immunisation policy.
- This can be achieved by the compulsory licensing clause of Indian Patent law.

## **4.5 Bio Weapons**

### **Why in news?**

Recently there are reports emerging that China was discussing the weaponizing the coronaviruses in 2015.

### **What does the report say?**

- In 2019, key official at the Wuhan Institute of Virology raised concerns about China's bio-research labs.
- China has restricted the access to data and destroyed relevant corona virus patient samples.
- It is also noted that there are certain inadequacies of China's in reporting to the Bioweapon Convention (BWC) Confidence-Building Measures.
- These measures are designed to monitor bio-weaponization by countries.

### **What are the other facts which support this argument?**

- Earlier U.S. has raised concerns about the way in which the findings of the WHO's SARS CoV-2-origin probe were communicated.
- It said that China's substantial biological facilities has sparked dual-use concern that there is a possibility of biological matter with legitimate and acceptable-use is diverted to bio-weapon.
- Even the latest US Adherence to and Compliance with Arms Control, Non-proliferation, and Disarmament Agreements and Commitments report flags this concern.
- It mentions that available information on studies conducted at Chinese military medical institutions discusses identifying, testing and characterising diverse families of potent toxins with dual-use applications.
- Also, there are lingering questions over the safety of China's labs.
- When compared to high-level biosafety laboratories in foreign countries, 80% of the relevant specification/standard of biosafety laboratories in China belong to the specification and quality standards under the macro guidance.
- Only a small fraction are operational method standards, making it difficult to ensure the security of the biosafety laboratory due to lack of operational technical support.

### **What can be done now?**

- China has acceded to United Nations Biological Weapon Convention in 1984.
- This underlines the need for both greater transparency regarding biological research/industrial use and stricter enforcement of bio-safety/anti-bioweaponisation compliance.
- National governments and multilateral forums must urge China and others which are in violation of BWC provisions, to become immediately compliant or face dire punitive measures.
- A trade action is an effective way to do this.



## 4.6 Revisiting the Vaccine Policy

### Why in news?

Recently, Supreme Court in response to the affidavit filed by the centre said that centre should procure vaccine for all states instead of asking states to procure from market.

### What does the affidavit say?

- It says that the Centre by its large vaccination programme has placed large purchase orders for vaccines as opposed to the State Governments and/or Private Hospitals.
- This has some effect on the prices negotiated i.e., it can buy vaccines cheaper than States or the private sector.
- The Centre will take 50% of this to give to States for the 45-plus age group, and the States get 25% of the total vaccine production for their use.
- Each State informs the centre about the number of vaccines it would receive and centre ensures that the prices of vaccine is uniform for all the States.
- The balance 25% in each State will go to the private sector based upon the contracts between private sector and vaccine manufacturers.

### What will be the outcome of this?

- Now question arises that how is the private sector in a specific State defined, since contracts are at a corporate level and not by State units.
- Also there is a doubt about the absorption of 25% by the private sector since in all CoWIN sites the private sector share is under 3% and its allocation will be more in urban areas.
- Thus, instead of the full production at zero cost, the States now get one quarter of the production at twice or more the price paid by the Centre.
- The private sector will access the other quarter, at a landed cost that, based on current reports, might be up to 10 times the price it paid earlier.

### Why centre must revisit its vaccine policy?

- First, India's vaccine policy is indefensible and not in line with international practice.
- Second it incoherent as it decontrols both price and quantity for every state.
- Third, it doesn't effectively address the essential problem in the reality.
- Centre is now threatening to penalise States which are not administering sufficient second doses.
- Moreover, it allows for just two vaccine manufacturers to produce vaccine in a heavily competitive drug manufacturing market.
- Currently the nation faces extreme shortage of vaccine which is exacerbated by adding 600 million 18 to 44-year-old citizens to 200 million unvaccinated people above the age of 45.
- In every other country, only the national government buys vaccines to vaccinate their citizens at free of cost except in Indonesia and Philippines.
- It is perplexing why Covaxin is not widely licensed, despite much of the core work in developing the vaccine was done at the ICMR-NIV in Pune.

### What are the other problems?

- The affidavit says that centre has taken efforts to procure vaccines from other countries.
- But these negotiations are a complex undertaking as it is taking place through diplomatic channels.
- Centre also accepted the challenge of door-to-door vaccination but it wants to make vaccination easier to access, e.g. through pop-up centres in communities.
- Also there is no enough residual trust between the Centre and States for equitable distribution of vaccines.
- Hence such policy will increase the revenue of vaccine manufacturers and making vaccine supplies more expensive and less equitable across geographies.

## 5. INDIA & ITS NEIGHBORHOOD

### 5.1 India-China Relations

#### What is the issue?

- It has been a year since the news of tensions between Indian and Chinese troops on the Line of Actual Control (LAC) in Ladakh first broke (May-June 2020).
- With this, here is an assessment of the developments so far, the present conditions and the future challenges.

#### What happened back then?

- The crisis involved Chinese incursions and violent clash with soldiers of the People's Liberation Army (PLA) in mid-June 2020.
- It eventually involved seven places: Depsang plains, Galwan, Gogra, Hot Springs, North bank of Pangong Tso, Kailash range and Demchok.
- With agreements to disengage from the Pangong lake area, it was planned to convene meeting of the senior commanders to address and resolve all other remaining issues.
- The last such meeting of commanders was held in April 2021, but the Chinese have refused to even discuss the remaining issues.
- Modi government seemed keen to announce a closure of the border crisis by creating the impression of an honourable solution against a major power.
- But, no such closure is in sight yet.

#### What is the current situation?

- The PLA troops deny India access to territories it controlled by patrolling.
- With this, the government's asserted aim of restoring the status quo ante as of April 2020 remains unfulfilled.
- Even on the north bank of Pangong, a new status quo has been created where the patrolling rights are yet to be restored.
- Similarly, the Kailash range has seen neither de-escalation nor de-induction so far.
- So, in all, there have been no further deaths after June 2020 and no firing after early September 2020.
- But, the peace on the border is both unstable and unsustainable.
- Ongoing tensions, with massive deployments on each side, belie any hope of tranquillity.
- Cognisant of the volatility and risk, Indian Army has undertaken a major reorientation of its units and formations towards the China border.
- China-India ties are thus moving into a zone of problems even as New Delhi grapples with pandemic-related issues.

#### How is COVID-19 and geopolitics playing now?

- India's geopolitical concerns have been exacerbated by the devastation caused by the mismanagement of COVID-19.
- Through its 'Vaccine Maitri' programme, New Delhi was presenting itself as a better alternative to Beijing's vaccine diplomacy, particularly in South Asia.
- But this trust was shaken, as the government has backtracked on existing contractual commitments to supply vaccines to its friendly neighbours.
- So, countries such as Bangladesh and Sri Lanka have started procuring vaccines from China.
- They are further casting doubts on India's reliability as a partner and raising questions about its ability to act as a counter to China.
- Sensing the opportunity, Beijing also moved in quickly, organising a meeting with all South Asian countries except India, to deal with the pandemic.



- New Delhi was also the lynchpin of the Quad's pledge to deliver a billion doses of COVID-19 vaccine throughout the Indo-Pacific by the end of 2022.
- But, India is now trying to import vaccines for its own population.
- Failing on its commitments to other poor countries under GAVI's COVAX scheme, the proposal now seems to be on a weak footing.

#### **What is the larger impact?**

- The failure of the government to anticipate and deal with a public health crisis has affected India's image as an emergent power.
- A weaker India is not only less attractive as a partner globally, it makes New Delhi more dependent on the US to deal with China.
- This will only confirm China's presumptions that India had been acting at the behest of the U.S. and further strain India-China ties.
- Meanwhile, the threat of a two-front collusive threat after the Ladakh crisis forced the Modi government to seek peace with Pakistan.
- This led to the announcement of the ceasefire on the Line of Control, and Pakistan awaits the steps on Kashmir promised by the Modi government.
- But no political environment has been created in India for any such step so far.
- It is hard to predict the Pakistani course of action hence.
- In all, an assertive China and a vengeful Pakistan acting in concert on the land borders is a serious threat to India.

#### **How are the pandemic-related India-China terms?**

- Beijing's efforts to offer aid to India to deal with the pandemic have been largely confined to private companies and donations from the Red Cross and Red Crescent societies.
- These are largely commercial contracts between private companies and not that of the Chinese government.
- Nevertheless, the fact remains that India is heavily dependent on China for crucial medical supplies.
- State-owned Sichuan Airlines had suspended cargo flights to India, but the supply chains have since been kept open by Beijing.
- This is in tune with the Indian demand from Beijing that the supply chain should remain open.
- But the other demand to ensure stable product prices has not been met.

### **5.2 Revival of India-Pakistan Trade Relations**

#### **What is the issue?**

- The recent trade restriction and the level of trade despite this are indicative of a possibility of resumption of India-Pakistan trade relations.
- This gives a reason to push for the revival of trade dialogue between the two countries.

#### **What was the recent restriction on trade?**

- In 2019, India and Pakistan undertook trade-restrictive measures against each other, perhaps the most severe in several decades.
- The Pulwama terror attack in Kashmir in February 2019 and cross-border air strikes played a role in this.
- After these, India withdrew the Most Favoured Nation (MFN) status of Pakistan.
- India also imposed a customs duty hike of 200% on imports.
- Later, when India revoked the autonomy of Jammu and Kashmir, Pakistan suspended bilateral trade.

#### **Is this the first time?**

- Trade curbs have been applied several times in the past too.



- But, such measures have been reversed to create a trade enhancing environment.
- Most notable is the protocol on resumption of trade in 1974 after a hiatus of 9 years following the India-Pakistan war in 1965.
- Both countries worked on a positive list of commodities for some years, which expanded over the years.
- This helped stabilise domestic prices and take care of seasonal shortages and food security.
- So, despite the current trade ban setback, the Indo-Pak history offers some optimism towards reviving the trade dialogue.

#### **What is the present condition?**

- Trade has been recorded in the first 11 months of the financial year 2020-21.
- During 2020-21 (April-February), the recorded bilateral trade was \$280 million.
- Of this, India's exports to Pakistan were \$278 million and imports were \$2 million.
- Nearly 77% of India's exports comprised vaccines, pharmaceutical products and products of chemical and allied industries.
- Interestingly, despite the trade ban, sugar was already being exported to Pakistan.
- It was the second most important item, accounting for 15% of India's total exports.
- Dates were the most important item being imported from Pakistan, accounting for 31% of total imports, followed by ethyl alcohol, which accounted for 17% of total imports.

#### **What does this indicate?**

- The overall value of trade with Pakistan may not be significant.
- But the number of items traded is certainly significant.
- Within a month of suspending bilateral trade with India, Pakistan lifted the ban on the import of medicines and raw material from India.
- This was to avert any crises and ensure that there is no shortage of essential drugs.
- In essence, there is more concrete evidence of trade between the two countries even after the imposition of restrictions.
- Thus, even under restrictive trade conditions, there are interdependencies between India and Pakistan.

### **5.3 Relook at India's Act East Policy**

#### **What is the issue?**

Despite the best intentions of an Act East Policy, India's standing and image in Southeast Asia have suffered.

#### **What is the present scenario?**

- Three developments over the past five years are testing Indian diplomacy in the region:
  1. the rising profile of China combined with growing China-India tensions
  2. disappointment in the region with India's economic under-performance
  3. rising concern in the region with India's approach towards its minorities, especially Muslims and Christians

#### **What does a rising China mean?**

- China's rise and growing assertiveness of the Xi Jinping regime initially generated a strong pro-India sentiment in the South-east Asian region.
- Many ASEAN countries wanted India to balance China's enhanced power.
- But, India's economic slowdown and inward orientation (decision to stay out of Regional Comprehensive Economic Partnership (RCEP) agreement) disappointed regional business.
- ASEAN and Indian governments tried to maintain good relations.



- But Southeast Asia's powerful business groups, mostly ethnic Chinese, began losing interest in India.
- However, as recently as 2017, during the Doklam stand-off between China and India, many ASEAN governments conveyed their quiet support for India.
- This was in the hope that a robust response from India would keep China's geopolitical ambitions in the region under check.
- But between Doklam and Galwantensions, there has been a change in the Southeast Asian assessment of China and India.
- It could be due to a willingness to accommodate Chinese interests, a growing admiration for China's assertion of power within the ethnic Chinese community in the region.
- Or, it could be due to a disappointment with India.

#### **How have civil society attitudes changed?**

- Ethnic Chinese loyalties define one segment of Southeast Asian civil society.
- And Islamic faith defines another large segment.
- In most ASEAN countries, ethnic Chinese practise Islam, Buddhism or Christianity.
- Given this, growing concern on Hindu majoritarianism in India has impacted civil society attitudes in countries like Indonesia, Malaysia, Thailand and Singapore.
- India deployed the soft power of "Buddhist diplomacy."
- But, Southeast Asian states and civil society seem less impressed by Indian hard and soft power even as their fear and/or admiration of China has gone up.
- [India was successful till a few years ago in holding China's rising hard power back with its own hard and soft power.]
- Both China's direct influence and that of ethnic Chinese in the South Asian region are on the rise.

#### **What is the larger impact?**

- All the above developments weakened the business-to-business (B2B) and people-to-people (P2P) connect between India and ASEAN.
- This was despite the best efforts of hard-pressed diplomats to maintain good government-to-government (G2G) relations.

## **6. BILATERAL ISSUES**

### **6.1 India-Japan Relations**

#### **Why in news?**

Recent Japan PM's meeting with the U.S. can be seen as a preview for the upcoming Japan PM visit to India.

#### **What were the talks between U.S. and Japan?**

- The crux of the discussions revolved around China and agenda was set for the wider Indo-Pacific engagement of Japan.
- Both the countries negotiated on their joint security partnership for addressing China's territorial disputes in the South and East China Seas and in the Taiwan Strait.
- They affirmed the centrality of their treaty alliance-long source of stability in East Asia and pledged to stand up to China in key regions such as the disputed Senkaku Islands and Taiwan.
- They also discussed on Chinese ambitions to dominate the development of new age technologies such as 5G and quantum computing.
- They earmarked billions in funding for the deployment of secure 5G networks, committed to build digital infrastructure in developing countries and collaborate in setting global digital standards.



- They want China to reform economic practices such as violations of intellectual property rights, forced technology transfer, excess capacity issues, and the use of trade distorting industrial subsidies.
- They emphasised their vision of a free and open Indo-Pacific that respects the rule of law, freedom of navigation, democratic norms and the use of peaceful means to settle disputes.

### **What India can expect from Japan?**

- First, India can expect a continuation of the balancing security policy against China that began in 2014.
- Crucially, India's clashes with China in Galwan have turned public opinion in favour of a more confrontational China policy.
- Both nations will affirm for a Free and Open Indo-Pacific and continued willingness to work with the Quad.
- Second, they will look to expand cooperation in sectors such as cybersecurity and emerging technologies.
- Earlier both the nations put forward a digital research and innovation partnership that included technologies like AI, 5G, Internet of Things and space research.
- With the U.S.-Japan summit, they might look to deepen cooperation between research institutes and expand funding in light of China's aforementioned technology investment programme.
- Third, economic ties and infrastructure development are likely to be top items on the agendas of the upcoming meeting.
- Japan has poured in around \$34 billion in investments into the Indian economy in the last two decades and it is India's 12th largest trading partner.
- But the trade volumes between the two nations stand at just a fifth of the value of India-China bilateral trade.
- After the summit, Japan's will reaffirm support for key manufacturing initiatives such as Make in Indi' and the Japan Industrial Townships.
- Further, India will be keen to secure continued infrastructure investments in the strategically vital connectivity projects in the Northeast and the Andaman and Nicobar Islands.
- Also the upcoming India-Japan summit would devote much attention to evolving a joint strategy towards key third countries and multilateral bodies.

## **6.2 Indo-U.S. Ties**

### **Whyin news?**

Recently the visit of external affairs minister to U.S. is expected to deepen the strategic partnership and synergy between the nations.

### **What is the history of ties between the nations?**

- During the Cold War, India and U.S. was ideologically divided which limited the possibilities for their international cooperation.
- After the Cold War, India rallied behind China and Russia on multilateral issues.
- The idea that multilateralism is a natural domain for India-China cooperation took a back seat when china blocked India's entry into the Nuclear Suppliers Group and permanent seat in the UNSC.
- It was the U.S. which ended India's nuclear isolation and India's default position of opposing the West on multilateral issues reduced.
- In the last couple of years, India has actively backed the European Alliance for Multilateralism and is open to positive engagement with U.S. on global issues.

### **What will the talks about?**

- One, is climate change which was the agenda when U.S. special envoy visited India last month.
- This will pave a way for the U.S. to support India's transition to green growth.
- Two, there exist serious differences on trade-related issues between the nations and there cannot be an unexpected convergence.

- But both the nations are convinced that overexposure to China has reduced their domestic manufacturing.
- Hence they will explore the possibilities for a new bilateral trade compact and potential cooperation to reform the global trading order.

#### **What will be the other highlights of the talks?**

- The conversation will go beyond the bilateral issues and will have regional and global dimensions.
- In the past, regional issues, including those in the subcontinent and broader Asia, were a major source of friction between the countries.
- The mechanism of the Quadrilateral Security Framework, which arose out of the India-US bilateral defence cooperation is emerging as instrument to shape the regional architecture in the east.
- U.S. has now embraced and reinforced the idea of an Indo-Pacific regional space which provides regional cooperation.
- India's principal national challenge today- combatting the virus through vaccination-is expected to be an important part of the talks.

#### **How can both the nations engage in combatting the pandemic?**

- U.S. has facilitated the release of essential items for vaccine production and delivering significant relief supplies.
- Even before the virus began to surge in April, U.S. saw the partnership with India as a critical element in the regional effort.
- This was to expand the production of vaccines and deliver them across the Indo-Pacific.
- As the second wave begins to recede and India's vaccine production revives, Indian and U.S. interlocutors must now plan to reboot the strategy to vaccinate the Indo-Pacific.
- Both the nations can pool their resources and strategies in boosting the global resilience against the pandemic and frame new international norms to combat it.
- India has welcomed U.S. move to reverse the earlier decision to move out of the World Health Organisation.
- This, in turn, brings us to the emerging possibilities for expansive India-US cooperation in the multilateral domain.

## **7. INTERNATIONAL ISSUES**

### **7.1 G7 meeting –Rebuilding the West**

#### **What is the issue?**

- The Group of Seven (G7) countries held its ministerial meeting in London recently.
- This comes as a signal that the West is rebuilding its unity and strength, as against the perception of a declining west.

#### **What led to the notion of a declining west?**

- The notion of a declining West has been around for more than a century.
- But its recent credibility is rooted in the dramatic rise of China and its presumed capacity to overturn prolonged western dominance of the international system.
- The following developments with China seemed to tilt the scales against the West:
  - i. rapid economic growth
  - ii. massive military modernisation
  - iii. impressive lead in new technologies such as Artificial Intelligence
  - iv. spectacular Belt and Road Initiative





- v. growing capacity to shape international institutions
- vi. enhanced political influence across the world
- vii. a deepening strategic partnership with Russia
- Reinforcing this has been the chaotic developments in the US during the four years of the Trump presidency.
- Trump trashed US alliances, abandoned America's global leadership, walked out of global institutions, and tore up agreements signed by his predecessor.

#### **How is the U.S at present under Biden's administration?**

- US President Joe Biden has brought order and purpose to governance at home.
- The US economy is roaring back on the strength of a huge economic stimulus and mass vaccination.
- Biden has brought a new vigour to American foreign policy as well.
- He has revitalised old US alliances in Europe and Asia and is building new global coalitions.
- Promising "extreme competition" with China, Biden has signalled that America is not willing to go gently in that front.

#### **Where does India stand?**

- Britain made invitation to India, along with Australia, South Korea and South Africa, to join the G-7 ministerial meeting and the summit thereafter.
- These are rooted in the conviction that Delhi must be an integral part of a powerful coalition of democracies to shape the global order in the 21st century.
- India seemed well poised to seize the new strategic opportunities coming its way.
- But India's disastrous handling of the second wave of the coronavirus has set back hopes for an early rebound of the Indian economy.
- The situation has raised questions about its readiness to take a larger international role.
- Seen together with global dismay at Delhi's democratic backsliding in recent years, India's international prospects are dull.
- Despite this gloomy condition now, India's society is resilient enough to recover and redeem its global possibilities.

### **7.2 Clashes at Jerusalem's Al-Aqsa**

#### **Why in news?**

Israeli police stormed the Al-Aqsa mosque compound in East Jerusalem, leaving a reported 300 people injured, on a day Israel observes as Jerusalem Day.

#### **What are the clashes over?**

- The ongoing violence in Jerusalem is a culmination of the tensions building up since the start of Ramzan in mid-April, 2021.
- The unrest is over the eviction of Palestinian residents from two neighbourhoods of East Jerusalem, Sheikh Jarrah and Silwan, to make way for Jewish settlers.
- A Jewish settlement agency has issued eviction notices to Palestinian families in Sheikh Jarrah.
- It claimed that their houses sat on land purchased by Jewish agencies in the late 19th century (when historic Palestine was a part of the Ottoman Empire).
- Arab families have been living in Sheikh Jarrah for generations.
- The Israeli Supreme Court postponed the hearing over the eviction, on the advice of the government.
- Israeli police set up barricades at the Damascus Gate, a main entrance to the occupied Old City of East Jerusalem.
- This move, aimed at preventing Palestinians from gathering there, led to clashes.



### What happened?

- On the last Friday of Ramzan, more than 150 people were injured when Israeli forces broke up a massive gathering of Palestinian worshippers.
- They had gathered to pray at the Al-Aqsa mosque, revered as Islam's third holiest site.
  - This happened hours before the annual May 10 Jerusalem Day processions by Jewish groups through the Old City of East Jerusalem.
  - This marks the day the territory was captured by Israeli forces during the 1967 Arab-Israeli war.
  - Israel annexed the territory later and incorporated it into West Jerusalem, captured earlier, in the 1947 war.
- The Palestinians sheltering inside the mosque threw stones and rocks.
- The Israeli Foreign Ministry said the incident was the "direct result of incitement by Palestinian terror groups".
- The ministry maintains that people inside the compound were planning to attack the May 10 processions of the Jews.

### What is the significance of the site?

- The clashes happened at one of the most revered and the most contested sites of the Palestinian-Israeli conflict.
- The Al-Aqsa is located on a plaza at Temple Mount, which is known in Islam as Haram-e-Sharif.
- The Mount is also Judaism's holiest site.
- The most imposing structure on the compound is the Dome of the Rock, with its golden dome.
- The Western Wall, also known as the Wailing Wall sacred to Jews, is one side of the retaining wall of the Al-Aqsa compound.

### What is the contention there?

- Al-Aqsa is central to the rival claims over Jerusalem.
- Both Israel and Palestine have declared Jerusalem their capital.
- For the present, the Palestinian Authority has its headquarters in Ramallah.
- Soon after the 1967 Six-Day War ended, Israel gave back to Jordan the administration and management of the Al-Aqsa compound.
- Non-Muslims have not been allowed to worship at Al-Aqsa.
- But Jewish individuals and groups have made repeated attempts to gain entry to the Mount Temple plaza.
- Since the late 1990s, around the time of the first intifada, such attempts began occurring with a regularity.
  - Intifada refers to the Palestinian uprising against Israeli occupation of the West Bank and Gaza Strip. The first intifada lasted from 1987 to 1993, and the second began in 2000.
- Jewish settlers began claiming the land in East Jerusalem and surrounding areas.
- It has led to repeated clashes and tensions at Al-Aqsa.
- Frequently, the Israeli police have backed such attempts.

### What is the long standing conflict?

- Jerusalem has been at the heart of the Israel-Palestine conflict.
- Israel captured the western part of the city in the 1948 first Arab-Israel war and the eastern half in the 1967 Six-Day War.
- It thus claims sovereignty over the whole city.
- On the other hand, the Palestinians say East Jerusalem should be the capital of their future state.
- Most countries have not recognised Israel's claim over the city.

- Most of them are of the view that its status should be resolved as part of a final Israel-Palestine settlement.
- Israel's tactic till now has been to hold on to the status quo through force.
- A peace process is non-existent and the Palestinians are divided and weak.
- Now, the move to evict Palestinians from East Jerusalem is seen as an attempt to forcibly expand Jewish settlements in the Arab neighbourhoods of Jerusalem.

### **What is the global response?**

- The UN Secretary General and US National Security Adviser expressed concern over the clashes.
- UN Secretary General asked Israeli authorities to exercise "maximum restraint" and to uphold and respect the status quo at Al-Aqsa.
- The US wanted Israeli and Palestinian authorities to "act decisively to de-escalate tensions and bring a halt to the violence".
- The UAE has "strongly condemned" along with Saudi Arabia and Pakistan.
  - Saudi Arabia has notably given its tacit blessings to the "Abraham Accords" by not opposing Israel's recognition by UAE, Bahrain, Morocco and Sudan.

## **7.3 War Crimes in Gaza**

### **Why in news?**

More than a week into their fourth war, Israel and the Hamas militant group already face allegations of possible war crimes in Gaza.

### **Which side is breaching the international law??**

- International law prohibits targeting civilians or using indiscriminate force in civilian areas.
- Israel says Hamas is using Palestinian civilians as human shields, and critics say Israel is using disproportionate force.
- It is hard to say who is right, especially in the fog of battle.
- The firing of hundreds of imprecise rockets into Israel by Hamas and other Palestinian groups is fairly clear-cut.
- But in Gaza, where 2 million people are packed into a narrow coastal strip, the situation is far worrying.

### **Why is the situation worse in Gaza?**

- Both sides operate in dense, urban terrain because that is all there is.
- Tight space and intense bombardments is the reality there.
- So, there are few safe places for Gazans to go.
- A blockade imposed by Israel and Egypt after Hamas seized power in 2007 makes it virtually impossible to leave.

### **What role does Hamas play?**

- As a grassroots movement, Hamas is deeply embedded in Palestinian society.
- Its political operation and charities are separate from its secretive armed wing.
- Israel and Western countries view Hamas as a terrorist organization.
- But it is also Gaza's de facto government.
- It employs tens of thousands of people as civil servants and police.
- So just being connected to Hamas doesn't mean someone is a combatant.
- In fact, there are many in Gaza who oppose the group.
- But all are equally exposed with nowhere to run.

### What are the key violations of international law?

- Earlier in 2021, the International Criminal Court launched an investigation.
- This was to look into possible war crimes committed by Israel and Palestinian militants during the last war, in 2014.
- Both sides already appear to be using the same tactics in this one.
- One of them is the urban combat.
- Palestinian fighters are clearly operating in built-up residential areas.
- They have positioned tunnels, rocket launchers and command and control infrastructure in close proximity to schools, mosques and homes.
- This is to benefit from protections afforded to noncombatants during war.
- Other issues are to do with proportionality and underground army.

### What is the issue of proportionality?

- Israel's critics often accuse it of the disproportionate use of force.
- Israel is an undeclared nuclear power, and it is the region's most powerful military.
- This is waging war on a militant group armed with little beyond long-range rockets.
- And the majority of such rockets are intercepted by Israel's anti-missile defenses.
- Given this disproportion, as in the past, the toll in the current conflict is dramatically lopsided.
- At least 200 killed were in Gaza, nearly half of them women and children, and 10 in Israel, all but one of them civilians.
- **Challenges** - Proportionality in international law also applies to individual attacks.
- But, proving a specific attack as disproportionate is extremely difficult.
- One would need to know what was targeted, what military advantage was gained.
- It is also to be shown whether it exceeded the harm inflicted on civilians and civilian property.
- So, in practice, only the most extreme cases are likely to be prosecuted under this.
- **Example** - Israel recently bombed a 12-storey building.
- It housed the Gaza offices of The Associated Press and the Al-Jazeera news network.
- The military says there was a considerable Hamas presence in the building.
- But it has provided no evidence.

### What is the underground army tactic?

- The International Committee of the Red Cross defines a combatant as -
  - i. someone with a "continuous combat function" (or)
  - ii. those engaged in combat at the time they are targeted
- So even if a building were filled with die-hard Hamas supporters, it would not be considered a legitimate target unless they were actively involved in combat operations.
- Members of Hamas' armed wing rarely, if ever, wear uniforms or identify themselves in public.
- They go underground as soon as hostilities begin, along with the political leadership.
- The vast majority of Hamas supporters are not involved in fighting, which means they are not supposed to be targeted.

## 7.4 China's Falling Population

### What is the issue?

- Official census data on China's population was released recently by its National Bureau of Statistics.
- It showed that in the decade up to 2020, China's population grew at its slowest rate since the 1950s, indicating a falling population.

### What are the highlights?

- **Population** - China's population has grown from 134 crore in 2010 by 5.34% over the past decade.
- It now stands at 141.2 crore people.
- **Growth rate** - The rate of population growth, however, has been steadily falling; falling for the fourth consecutive year.
- Annually, the country grew 0.53% in the last 10 years, down from 0.57% between 2000 and 2010.
- This is the slowest of any decade since the 1950s.
- **Age composition**—In 2020, 1.2 crore babies were born in China, down from 1.465 crore in 2019, a fall of 18% in one year.
- The country's fertility rate has dropped to 1.3.
- This is far below the replacement level of 2.1 required for a generation to have enough children to replace it.
- The country's working population (between ages 15 and 59) is now 63.35% of the total, down by 6.79% from 2010.
- The number of people above age 60 has also gone up to 18.7% of the population, up by 5.44% from the last census.
- A positive factor is the greater proportion of children 14 years or younger, now at close to 18% of the population, up by 1.35% from 2010.
- This rise has been credited to China relaxing its strict one-child policy in 2016 and allowing two children per family.
- [ The controversial one-child policy was put into force in the late 1970s.
- Authorities claim that it helped the country avert severe food and water shortages.
- But, theoretically, it prevented up to 40 crore people from being born. ]

### What is unique to China here?

- China's slowing population growth is part of a trend seen in many countries in Asia and the West.
- It mirrors the trends seen in neighbouring South Korea and Japan.
- In 2020, South Korea saw its population decline for the first time in history.
- In the United States too, the birth rate has dropped to 1.6, the lowest on record.
- Prosperous countries like Japan and Germany face similar demographic challenges.
- But they can depend on investments in factories, technology and foreign assets.
- But China, despite being the world's second-largest economy, is still a middle-income society.
- So, unlike the other developed countries that are part of this population trend, this will be a problem unique to China.
- It still depends on labour-intensive manufacturing and farming.
- So, a drop in demographic dividend could hurt China and other developing nations like India more than those in the rich world.

### What are the challenges ahead?

- The UN expects China's population to begin declining after 2030.



- But some experts say this could happen as early as in the next one or two years.
- By 2025, the country is set to lose its 'most populous' tag to India. [India, in 2020, had an estimated 138 crore people, 1.5% behind China.]
- It implies fewer young people joining the workforce and the existing population rapidly ageing.
- When the young population in a country declines, it creates labour shortages, creating a major detrimental impact on the economy.
- More older people also means that demands for healthcare and pensions can soar.
- This, in turn, will burden the country's social spending system further when fewer people are working and contributing to it.

#### **What are the policy measures taken?**

- Policymakers will now have to find ways of sustaining China's high growth despite the above.
- In an effort to overcome this challenge, the Chinese government announced recently that it would increase the retirement age by a few months every year.
- While some welcome the move, others are unhappy about being forced to continue working.
- For the past four decades, the retirement age in China has been 60 for men and 55 for women, or 50 for women in blue-collar jobs.
- The government is also expected to increase incentives for couples to have more children.
- This comes although such sops have failed in the past in the face of higher cost-of-living challenges and career choices.
- Authorities have also been urged to completely drop restrictions on the number of children allowed per family.

## **G.S PAPER III**

### **8. ECONOMY**

#### **8.1 Revenues from GST**

##### **Why in news?**

Recently revenues from the GST hit an all-time high, surpassing the previous month's record.

##### **Why the revenue was high?**

- In April 2020, GST collections had dipped to a mere Rs. 32,172 crore due to national wide lockdown which affected all the economic activity.
- In October 2020, GST revenues was around Rs. 1.05 lakh crore and since then there was a steady increase with hopes of a sustained recovery.
- In April 2021, revenues from the GST was Rs. 1,41,384 crore surpassing the previous month's record of about Rs. 1.24 lakh crore.
- This is essentially driven by the transactions in previous month, due to heightened economic activity.
- The rising COVID-19 cases and the fear of an impending lockdown could have driven people to make advance purchases in anticipation.
- Moreover, firms in the process of closing annual accounts may have remitted higher GST based on audit advice.
- Also gradual tightening of the compliance regime, pro-active co-ordinated probes against taxpayers using fake bills to evade liabilities has also played a significant role.

### What are the future prospects?

- Now going by the restrictions imposed in several States, supply chain disruptions are not expected to be as challenging.
- However, weakening demand will trigger a recalibration of production and investment plans
- In 3<sup>rd</sup> week of April 2021, major two-wheeler producers saw reduced sales when compared to March 2021.
- Gradually, plants began to shut down in order to reduce inventory build-ups.
- In a report, Crisil has warned of several indicators sliding since mid-April, including GST e-way bills which fell by over 6% for two weeks in a row.
- As per IHS Markit, manufacturing orders' growth hit an eight-month low in April.
- The pandemic surge and desperate shortage of health infrastructure have prompted industry leaders to pitch for a stringent lockdown.
- Now it is hard to expect GST and other tax revenues to stay robust until government gets a better grip on infections and vaccinations.

### What can be done now?

- With the Assembly polls over, the Centre must convene the GST Council.
- The council should look into rationalisation of GST rate slabs, rearrange the rates on critical pandemic supplies and address the issue of bringing fuel under GST.
- It must begin release the shortfalls in GST compensation to States.

## 8.2 Wrong Listing

### Why in news?

Recently, US Department of Treasury included India in the currency manipulator's list in its April 2021 report.

### Why U.S. included India?

- The current account deficit of the US is expanding to 3.5 per cent of GDP in the fourth quarter of 2020.
- This is the largest as a share of GDP since the last quarter of 2008 so it tries to apply pressure on its trading partners.
- The report examined the macroeconomic and foreign exchange policies of major trading partners of the US.
- It has identified five countries — Vietnam, Switzerland, Taiwan, India and Singapore — as currency manipulators.

### Should India worry about the listing?

- The US Treasury identifies currency manipulators based on three factors:
  1. one-sided intervention in the foreign exchange market with the purchases amounting to at least 2 % of the country's GDP;
  2. current account surplus of at least 2% of GDP over a 12-month period;
  3. material trade surplus with the US of at least \$20 billion over a 12-month period;
- One, though India's current account registered a surplus of 1.3 % of GDP in 2020, it was mainly due to falling demand leading to contraction in imports and falling crude oil prices.
- Two, India has always had a trade surplus with the US and therefore the surplus in goods trade with the US in 2020 at \$24 billion is not new.
- Three, though RBI had to persistently purchase dollars through 2020 but it was not intended to help exporters.
- The purchases were mainly because of the large stimulus announced by global central banks which resulted in abundant foreign portfolio and FDI flows into the country.
- The RBI was forced to buy the dollars flooding the country, though it was inflationary and the return on dollar denominated securities was very poor.



- Therefore, RBI need not pay much attention to the US Treasury report.

#### **What can we infer from this?**

- It is quite likely that India will be out of this list because RBI has halted its dollar purchases in the spot market since February and shifted its interventions to the rupee forward market.
- With RBI to support the Centre's large borrowing programme in FY22 through purchases of Indian government bonds, the room to purchase dollar denominated securities is limited.
- Therefore, Indian currency is likely to drift with a downward bias over the coming months as the foreign capital flows are likely to be lower.

### **8.3 Easing the Pain**

#### **Why in news?**

Recently RBI has announced series of measures to address the challenges posed by the ongoing second wave of COVID-19 pandemic.

#### **What are the measures announced?**

- RBI has timely intervened to alleviate any financing constraint for those impacted including the health-care sector, state governments and public.
- It provides a special liquidity window of ₹ 50,000 crore where banks can borrow up to three-year money at the repo rate to on-lend special Covid loans to priority sector classified scheme.
- Priority sector now includes entities of vaccine manufacturers, hospitals, pathology labs, suppliers of oxygen and ventilators, importers of COVID-related drugs and logistics firms.
- Small borrowers in the informal sector, micro enterprises and self-employed persons are worst hit by the localised lockdowns.
- So RBI has enhanced the provision of credit by allowing small finance banks to classify loans to small microfinance institutions.
- It has announced one-time restructuring concession which is limited to loans up to ₹ 25 crore.

#### **What are the concerns?**

- Though the scheme covers patients requiring treatment but RBI has failed to spell out how those most in need of financial assistance to cover their medical bills could borrow the funds.
- It is to be patiently seen that how much lending capital-stressed banks would be willing to write into their COVID loan books.
- The credit routed via banks cannot be substitute for direct income or livelihood support measures to households devastated by Covid.
- In the one-time restructuring scheme, ₹ 25-crore threshold may be too low to make a material difference to small/medium enterprises.
- Also borrowers who received relief last year or are already in default have been specifically excluded.
- Perhaps, RBI is of the view that restructuring demands from larger borrowers can be evaluated by banks on a case-to-case basis.

#### **What can we infer?**

- RBI is mindful of its responsibilities as a regulator by avoiding instruments such as blanket loan moratoriums, interest waivers and loan classification standstills.
- Such measures dispense relief to borrower segments that don't need them and increase risks for bank depositors and investors.
- Credit support, as opposed to direct grants can create a multiplier effect as it can give relief to genuine entities.





## 8.4 Sovereign Gold Bonds

### Why in news?

Recently the Reserve Bank of India (RBI) has announced a plan to sell sovereign gold bonds (SGBs) in six phases.

### What are Sovereign gold bonds?

- Sovereign gold bonds are issued by the RBI on behalf of the government.
- They are government securities denominated in grams of gold which are substitutes for holding physical gold.
- In 2015, sovereign gold bond scheme was launched with an objective is to reduce the demand for physical gold and shift a part of the domestic savings (used for the purchase of gold) into financial savings.

### What are the terms of the issue?

- The Sovereign Gold Bond Scheme 2021-22—Series I will be open for subscription for the period May 17-21, 2021.
- This will be followed by Series II (May 24-28), III (May 31-June 4), IV (July 12-16), V (August 9-13) and VI (August 30-September 3).
- The nominal value of the 8-year bond is Rs 4,777 per gram of gold, based on the simple average closing price on the last three business days of the week preceding the subscription period of Series I.
- There's a discount of Rs 50 per gram to investors when applied online and the payment against the application is made through digital mode.
- Gold bonds bear interest at a fixed rate of 2.50% per annum on the amount of initial investment which will be credited semi-annually.
- These bonds are sold through offices or branches of nationalised banks, private banks, foreign banks, designated post offices, Stock Holding Corporation of India Ltd., the authorised stock exchanges etc.

### What are the minimum and maximum limits for investment?

- The bonds are issued in denominations of 1 gram of gold and in multiples thereof.
- The minimum investment will be 1 gram, with a maximum limit of subscription of 4 kg for individuals, 4 kg for Hindu Undivided Family (HUF) and 20 kg for trusts.
- Government notifies other similar entities from time to time per fiscal year (April–March).

### Can these securities be used as collateral for loans?

- They can be used as collateral for loans from banks, financial Institutions and non-banking financial companies (NBFC).
- The loan-to-value ratio will be the same as applicable to ordinary gold loans prescribed by RBI from time to time.
- Granting loans against SGBs would be subject to the decision of the bank/financing agency, and cannot be inferred as a matter of right.

### What are the tax implications?

- Interest on the bonds will be taxable as per the provisions of the Income-Tax Act, 1961 (43 of 1961).
- But the capital gains tax arising on redemption of SGB to an individual has been exempted.
- Indexation benefits will be provided to long-term capital gains arising to any person on transfer of bonds.
- Though TDS is not applicable on the bonds, but it is the responsibility of the holder to comply with tax laws.

### What will investors get on redemption?

- Investors gain from appreciation in gold prices as redemption of bonds will be based on the then prevailing prices.
- If gold prices rise, the investor will get the higher prices plus the 2.5% interest and vice-versa.
- On maturity, the gold bonds will be redeemed in Indian rupees and the redemption price will be based on a simple average of closing price of gold of the previous 3 business days from the date of repayment.

- Although the tenure of the bond is 8 years, early redemption of the bond is allowed after the fifth year, on coupon payment dates.
- The bond will be tradable on exchanges, if held in demat form and can also be transferred to any other eligible investor.

#### **Why should investor buy gold bonds rather than physical gold?**

- The quantity of gold the investor pays for is protected, since he receives the ongoing market price at the time of redemption/premature redemption.
- These bonds offer a superior alternative to physical gold as the risks and costs of storage are eliminated.
- Investors are assured of the market value at the time of maturity, and periodical interest.
- Also these bonds are free from issues like jewellery making charges and purity, risk of loss of scrip etc.

### **8.5 Reforming Subsidies**

#### **How consumption will get affected due to the pandemic?**

- India's growth forecasts are now 1-2 percentage points lower due to the second wave of coronavirus.
- But the actual economic toll may be higher and consumption demand may remain subdued longer than currently foreseen and there are sufficient reasons to justify this fact.
- One, lethality of virus and its spread, severe human and economic scarring, fear-persistence due to the anticipated third wave, and lack of guaranteed vaccination will affect the consumption.
- This is in addition to the drained financial strength from health expenses and income losses, increased indebtedness.
- Two, the supply-side stress are also affecting the consumption pattern.
- MSMEs are affected by shutdowns which affect their sales, raw material procurements and supply chain linkages.
- Large firms are impacted by labour shortages due to migration, infections, lowered sales and future demand uncertainties.
- As a result there is feeble demand for credit and loan restructuring in the banking sector.
- Three, it is expected that reopening the economy will be accompanied with more infections in forthcoming months which will reduce demand.

#### **What are the steps to be taken?**

- It is advocated that budgeted expenditures should be reoriented to meet the emergency health and income requirements.
- The government should act along the structural lines and prepare a fiscal space for this emergency of unknown magnitude and longevity.
- It must follow the efforts of deepening the revenue-expenditure reforms as it did last year.
- This involves reforms to agriculture marketing and institutional structures, accounting transparency by bringing subsidy arrears (food, fertilisers) on the balance sheet, raising LPG prices.

#### **What is the issue in this?**

- Recently, there has been regression with the increase in fertiliser subsidies instead of revising issue prices.
- This can derail the reform momentum and diminish the credibility of effort and commitment to improve finances.
- Therefore any reform should aim to reduce subsidies over the medium-term in a modest fashion.
- For example, it can choose between different ways to moderate the food subsidy, i.e. streamlining the beneficiary eligibility and numbers or revising the issue prices or a mix of both.
- Other welfare and often populist expenditures, at both state and central levels should also be reviewed.

### What is the inference?

- This stretching pandemic of unknown duration and spread will worsen the employment-income situation of the people.
- RBI cannot alone lead with its monetary measures and fiscal policy measures needs to be taken.

## 8.6 MSME Udyam Registration – Low Rate

### What is the issue?

- In June 2020, the MoMSME issued a notification revising the definition of Micro, Small and Medium Enterprises (MSMEs) and introduced a new registration system – the Udyam.
- But the numbers for the new Udyam registration system remains low, and here is why.

### What were the changes made?

- With effect from July 1, 2020, the revisions in the MSME definition were three-fold:
  - i. the distinction between manufacturing and services sector MSMEs was removed
  - ii. an additional criterion of turnover was introduced
  - iii. investment thresholds were revised upwards
- The notification also introduced a new procedure for registration in accordance with the revised MSME definition, under the Udyam system.

### How is the level of registrations?

- As on March 31, 2021, which was the deadline for registering under the new Udyam system, only 26.4 lakh enterprises have registered.
- This means less than 5% of the total estimated MSMEs (6.33 crore) in the country are Udyam registered now.
- The previous registration system for MSMEs – the UdyogAadhaar Memorandum (UAM) – had more registrations.
  - Introduced in 2015 and operational until June 2020, this system had a little over one crore registrations.
  - This is approximately 16% of the estimated MSMEs.
- Like the UAM system, the Udyam system is also free of cost, paperless and digital.
- An important difference is that under Udyam, once Aadhaar/PAN is provided, all the relevant income tax and GST data can be pulled from the respective government databases, at the backend.
- Moreover, a single registration is enough for multiple activities undertaken by the same enterprise.

### What are the benefits under Udyam registration?

- Enterprises who self-certify and attain registration are eligible for certain benefits.
- These range from being eligible for subsidy schemes like the Credit Linked Capital Subsidy Scheme (CLCSS) to registering complaints regarding delayed payments on the MSME SAMADHAAN portal.
- As per the RBI's notification, from August 2020, lenders may demand the Udyam registration for credit purposes.
- The Udyam portal is also integrated with the Government e-Marketplace and the Trade Receivables and Discounting System (TReDS).
- So, these enterprises can participate in government procurement, and have a mechanism for discounting their bills.

### Why is the registration rate low then?

- One reason could be the earlier requirement that companies that wanted to register under Udyam had to provide their GSTIN.
- Since many companies have a turnover of less than Rs 40 lakh and hence do not need to be GST compliant, it rendered them ineligible to register.



- Such a requirement was removed by the MoMSME on March 5, 2021.
- However, since the deadline for registration was March 31, 2021, this intervention could have deterred many MSMEs from registering.
- Of the total Udyam registered enterprises, only 2% are with GSTIN.
- Another reason could be the lack of awareness regarding the new registration system itself.
- This is a general observation when examining low off-take of schemes that are rolled out for the sector.
- Low levels of awareness regarding the roll-out of schemes, their eligibility conditions, paperwork requirements and grievance redress mechanisms impact overall off-take of these schemes.
- Another grim but likely explanation could be that a vast number of MSMEs have had to wind down in the pandemic period.
- Despite policy initiatives to give the sector a fillip, lockdowns and disruptions in supply chains have had their own impact.

#### **What will the implication be?**

- The fate of close to 6 crore unregistered entities remains uncertain.
- The question remains whether they will be allowed to avail subsidies and other credit facilities without an Udyam registration.
- Priority Sector Lending (PSL) directions have not stated an explicit requirement for a UAM or the Udyam number.
- However, since the RBI has allowed lenders to demand the Udyam registration for credit purposes, it is possible that some may choose to do so.
- Given the already burgeoning credit gap in the sector, lenders placing such requirements for a priority sector could further accentuate the credit gap for MSMEs.

#### **What next?**

- While the expectation is that the deadline will be extended, the need to ramp up the execution of such important initiatives cannot be overstated.
- Ten states in the country account for 74% of the total estimated MSMEs.
- In states that make up the predominant share of MSMEs, the MSME-District Institutes and other field offices of the MoMSME must be roped in.
- They must be tasked with educating and creating awareness regarding the Udyam system, on a priority basis.
- Last-mile awareness regarding systems and schemes that can benefit MSMEs will be a necessary step towards bridging the never-ending access gap.

### **8.7 India's Accumulation of Gold Reserves**

#### **What is the issue?**

- The RBI has revised its stance towards accumulation of gold reserves in the recent years.
- In this context, here is a look at the gold reserves trend and the rationale for the changes.

#### **What is the current gold reserves status?**

- The RBI has not made any move to increase its gold reserves for many years after its purchase of gold from the IMF in 2009.
- But India's gold reserves have been increasing at a steady pace over the last 3 years.
- These purchases have added 137 tonnes to the gold reserves between December 2017 and March 2021.
- The share of gold in India's foreign exchange reserves has increased to 7% currently, from 5% in March 2017.
- The resolve to buy gold is continuing in 2021, with purchases in the first quarter already amounting to 18.7 tonnes.

- The RBI currently holds 695.3 tonnes of gold, ranking tenth globally in gold holding.
- The quantity of holding is less than that of the US, Germany, France and Switzerland.
- However, it is far higher than other emerging economies, with the exception of China

#### **What is the larger trend?**

- India is not the only country purchasing gold.
- A few other emerging economies are also following a similar strategy.
- Countries such as Turkey, Russia and Kazakhstan have also been avid buyers of gold over the last 5 years.
- The main reason appears to be the need to reduce the risks emanating from excessive US dollar exposure.
- It is driven by a desire to reduce the dominance of the US over the global economy.
- One way to do so is to reduce the usage of US dollars in their external transactions as well as in their reserves.

#### **What is India's rationale?**

- India's desire to add gold reserves seems to be driven mainly by the fear of depreciation in dollar value causing capital loss.
- India's forex reserves have been on an upward trajectory for most part over the last three decades.
- This was because the RBI used the foreign portfolio and direct investment inflows to build its reserves.
- More than one-third of these reserves are held as US treasury securities
- In this context, the beginning of the RBI's recent gold purchases in early 2018 coincides with two events.
  1. the US dollar fell sharply in 2017 as the trade war with China and crash in commodity prices led to selling in dollar assets
  2. yields on US treasury bonds spiked sharply between September 2017 and March 2018
- These two happenings, taken together, would have resulted in a sharp loss in the value of US treasury securities held in foreign exchange reserves.
- Gold prices have also been in a strong up-trend since September 2018, gaining almost 48% since then.
- All these would have encouraged the RBI's resolve further.

#### **What are the downsides to holding gold?**

- There are limitations to the gold reserves that India can hold.
- One, gold prices are volatile and can result in sharp capital loss.
- E.g. gold prices crashed around 30% in 2013. A country that held over 50% of its reserves as gold would have seen its reserve deplete by 15% that year.
- One of the objectives behind building forex reserves is to create a buffer to help tide over external account crisis or to support the currency in times of extreme stress.
- So, exposing a large part of reserves to sharp swings in value is not recommended.
- Secondly, gold's property as a safe haven has been questioned quite often in recent past.
- It does provide a hedge in periods of extreme stress that last for short durations, as was seen in March 2020.
- However, over longer time-frames, gold is not an effective hedge for the portfolio.
- Another factor is that liquidity in gold is relatively lower when compared to other fixed income securities.
- Also, if central banks begin offloading large quantities of gold in the market, it tends to impact gold price adversely.
- This, in turn, affects the residual holding in the reserves.
- Also, the assets that make up the reserves should be decided based on –
  - the currency-composition of the country's external trade

- the currency in which it has borrowed overseas
- the key currency to which its value is linked and so on
- Given these factors, India needs to hold a chunk of its reserves in US dollars.
- Along with this, the RBI will have to decide how much exposure it wants in gold and regulate its purchases accordingly over the next 2 years.

## 8.8 Retail Inflation & Industrial Output Data

### What is the issue?

- The National Statistical Office (NSO) released the retail inflation and industrial output data.
- It offers some relief from the economic impact of second wave of the COVID-19 pandemic, but there are still factors to remain cautious about.

### What is the inflation scenario?

- Provisional headline inflation (Consumer Price Index (CPI)) slowed to a three-month low of 4.29% in April, 2021.
- This was a result of softer food prices and a statistical base effect.
- A closer look at the inflation data reveals a substantial cooling in the prices of cereals, milk and milk products, vegetables, and pulses and products.
- Both cereals and vegetables saw a deflationary trend widen to -2.96% and -14.2%, respectively.
- Dairy products, which have the second-largest weight in the food and beverages category, also slid into deflation territory at -0.13%.
- Price gains in pulses decelerated into single digits to reach a 20-month low of 7.51%.
- [Earlier price gains in pulses had been bothering monetary policy makers by having been stuck in the double digits over an 18-month stretch.]
- The combined impact of these slowed inflation across the food and beverages group by more than 250 basis points to 2.66%.

### What is the need for caution?

- The same Consumer Price Index data also point to persistent price pressures.
- Price gains in meat and fish increased to 16.7% and was little changed at 10.6% in the case of eggs.
- Inflation in oils and fats accelerated almost 100 basis points to 25.9%.
- Transport and communication also remained in the double-digit range at 11.04%.
- This was despite benefiting from the virtual freeze in the pump prices of petroleum products that coincided with recent Assembly elections.
- Global crude oil is starting to rise again and local petrol and diesel prices are resuming their upward trajectory.
- So, the prospect of haulage costs — for transporting goods from factory and farm gates — rising in the near term is very real.
- All these could potentially result in faster inflation in the coming months, also amidst the impact of the lockdown in several states.
- This, along with rising international commodity prices, the outlook for inflation gets even more uncertain.

### What is the industrial output scenario?

- A separate NSO release showed March 2021 industrial output jumped by 22.4%.
- This again benefitted from the fact that the Index of Industrial Production (IIP) had posted an 18.7% contraction in March 2020 during lockdown.
- But, industrial production numbers may also provide cheer only for a limited period.

- New orders and output have slowed to eight-month lows in April 2021.
- The pandemic-triggered factory shutdowns further threaten supply disruptions, industrial production, and thus, inflation faces challenges.

### What is the way forward?

- Measures to bolster demand are the need of the hour amidst the lockdown-induced economic impact.
- Nevertheless, policymakers must stay vigilant to ensure price stability.

## 8.9 Re-imagining PSU bank privatisation

### What is the issue?

- The sudden surge in the pandemic has caused a loss of momentum in the government's privatisation exercise, but it is still a priority.
- In this context, the government will need to be careful to avoid further pitfalls, and here is a proposed strategy blueprint for that.

### What are the elements to be factored in?

- **Independent authority** - Transfer the entire government stake in the relevant PSB to a separate quasi authority like SUUTI (Specified undertaking of the Unit Trust of India).
- This will signal a clear intent to divest at market prices once the bank's financial health improves.
- This would also remove the vigilance overhang that affects decision-making.
- **Governance** - In addition to reputed independent directors, strengthening the bank board is essential.
- This should be through addition of eminent banking talent from the industry.
- Also, making the senior bank executives accountable for time bound implementation of revised business plans is needed.
- **Capitalisation by anchor investor**- Fresh capital infusion by an anchor investor, selected amongst eligible bidders via open auction can be done.
- This is to give it a significant minority stake, thereby diluting overall government stake.
- The selection bid mechanism could be similar to erstwhile SEBI screen-based auctions that involved FPIs/FIIs placing premium bids for winning government and corporate debt limits.
- **Share sale** - There will be no stake sale to the private anchor investor.
- Over the next few years, with regular capital infusions, the anchor investor will creep up to the desired regulatory comfort level.
- **Divestment target and dividends** - The capital receipts to the exchequer will accrue via subsequent sales in dribs and drabs in the open market, post restoration of the banking house.
- The government, however, continues to earn revenue receipts to meet budgetary priorities.
- This will be through regular and even one-time structured dividends via SUUTI, which is expected to retain majority holding in the near future.
- A planned dividend history also benefits the share price, thereby eventually yielding better price as SUUTI pares down its holding.
- Short-run divestment shortfalls can be met by quickly disposing of marginal SUUTI/government stake in blue chips.
- Generating value from unlisted holdings like NSDL and SHCIL is another step.
- Fast-tracking smaller PSU privatisation that are far less complex than PSB divestments which attract scrutiny at every step can be taken up.
- **Stakeholder welfare**- The anchor investor brings in much needed capital for growth besides supporting the bank improve its market positioning, taking along all stakeholders.

## 9. INFRASTRUCTURE

### 9.1 DoT's Green Signal for 5G Trials

#### Why in news?

The Department of Telecommunications allowed private telcos and state-run telco MTNL to start trials for 5G technology as well as its applications in various sectors.

#### Which firms are allowed?

- Private telcos (telecommunication companies) include Bharti Airtel, Reliance Jio Infocomm and Vi (formerly Vodafone Idea).
- State-run telco Mahanagar Telephone Nigam Limited (MTNL) is also allowed to conduct trials.
- The trials will last for 6 months for now.
- 5G or fifth generation is the latest upgrade in the long-term evolution mobile broadband networks.
- 5G mainly works in 3 bands, namely low, mid and high-frequency spectrum, all of which have their uses and limitations.

#### Why are the trials for 5G technology important?

- The telecom market in India is left with only three private telcos.
- The rest have surrendered to the low returns on investments over the years.
- Apart from the private telcos, the two state-run companies, MTNL and Bharat Sanchar Nigam Limited (BSNL) have also survived but are making losses.
- In order to increase their average revenue per user, it is pertinent for telcos to start offering the new 5G technology as soon as possible.
- For that, however, they will have to conduct trials in a variety of circumstances.
- Apart from the telcos, it is also important that the government be ready to roll out the new technology as soon as possible.
- The telecom sector already faces issues such as –
  - i. delays in approvals
  - ii. inadequate availability of spectrum
  - iii. high spectrum prices
  - iv. poor development of use cases
  - v. low status of fiberisation, among others
- So, India could miss the 5G opportunity if not for early measures and programmes.

#### How will the trials be carried out?

- In the initial phase, these trials will be for 6 months.
- This includes a 2 month period for procurement and setting up of the equipment.
- In these 6 months, telcos will be required to test their set up in urban areas, semi-urban areas as well as rural areas.
- During this period, the telcos will be provided with experimental spectrum in various bands.
- The mid-band of 3.2 GHz to 3.67 GHz, the millimeter wave band of 24.25 GHz to 28.5 GHz, and others.

#### What are the advantages and limitations with these bands?

- The low band spectrum has shown great promise in terms of coverage and speed of internet and data exchange.
- But the maximum speed is limited to 100 Mbps (Megabits per second).



- This means that telcos can use and install it for commercial cellphone users who may not have specific demands for very high speed internet.
- However, the low band spectrum may not be optimal for specialised needs of the industry.
- The mid-band spectrum, on the other hand, offers higher speeds compared to the low band.
- But it has limitations in terms of coverage area and penetration of signals.
- Telcos and companies, which have taken the lead on 5G, have indicated that this band may be used by industries and specialised factory units.
- This would help build captive networks that can be moulded into the needs of that particular industry.
- The high-band spectrum offers the highest speed of all the three bands, but has extremely limited coverage and signal penetration strength.
- Internet speeds in the high-band spectrum of 5G has been tested to be as high as 20 Gbps (giga bits per second).
- On the other hand, in most cases, the maximum internet data speed in 4G has been recorded at 1 Gbps.

#### **What were the issues resolved?**

- In June 2019, the DoT had first approved 5G trials.
- However, there were multiple issues that came in the way.
- For instance, there was no clear roadmap of spectrum availability and 5G frequency bands aligned with the global standards.
- Typically, a 5G operator needs a contiguous block of 100 MHz of spectrum to offer any meaningful service.
- This meant the 175 MHz earmarked for 5G was grossly inadequate. This has now been resolved.
- There was also no clarity on whether Chinese equipment vendors, including Huawei and ZTE, will be allowed to supply 5G gear to Indian operators.
- This also has now been clarified with the DoT barring Chinese vendors from the trials.
- Over the past year, a number of Indian companies have developed 5G capabilities.
- The proposed trials will be a good opportunity to prove that these indigenous platforms can be viable alternatives to the Chinese vendors.

#### **What are the concerns to be addressed?**

- There is a need to move away from the existing mechanism of pricing spectrum on a per MHz basis.
- If the Centre were to fix the floor price based on the per Mhz price realised in the last auction, then no operator would be able to afford 5G spectrum.
- The Centre must also address the issue of financial stress in the sector to avoid a duopoly.
- The Centre should help by lowering licence fees and spectrum usage charges.
- With this, telecom companies can free up capital that can then be invested in network expansion.
- Finally, the regulator must ensure that operators are meeting the quality of service parameters of existing 2G and 4G networks before embarking on a new 5G platform.
- Consumers are still grappling with issues like voice call drops and interrupted data services.

## **10. AGRICULTURE**

### **10.1 Increase of subsidy on DAP**

#### **Why in news?**

Recently, the government has announced a 140% increase in the subsidy on di-ammonium phosphate (DAP).

### What is DAP and why is it important for farmers?

- DAP is the second most commonly used fertiliser in India after urea and farmers normally apply this fertiliser just before or at the beginning of sowing.
- It is high in phosphorus which stimulates root development.
- Though there are other phosphatic (P) fertiliser such as single super phosphate that contains 16% P and 11% sulphur (S)-DAP is the preferred source of P for farmers.
- This is similar to urea, which is the farmers preferred nitrogenous fertiliser that contains 46% N.

### How is subsidy scheme in DAP different from other fertilisers?

- The maximum retail price (MRP) of urea is currently fixed at Rs 5,378 per tonne or Rs 242 for a 45-kg bag.
- Since companies are required to sell at this rate, the subsidy (the difference between the cost of manufacturing or import and the fixed MRP) is variable.
- But the MRPs of all other fertilisers are decontrolled and companies sell these at the rates that they decide and the government only gives a fixed per-tonne subsidy.

### Do non-urea fertilisers attract same subsidy?

- Non-Urea fertilisers are governed by nutrient-based subsidy or NBS i.e. depending on the nutrient content for different fertilisers, the per-tonne subsidy is fixed.
- Since one tonne of DAP contains 460 kg (46%) of P and 180 kg (18%) of N, the subsidy comes to Rs 10,231 or Rs 511.50 for a 50-kg bag.
- Likewise, the subsidy on muriate of potash (60% K) is Rs 6,070 per tonne, while it is Rs 2,643/tonne for SSP and Rs 8,380/tonne for the popular '10:26:26' NPK fertiliser.
- Most of the companies sell DAP to farmers at around Rs 24,000 per tonne or Rs 1,200/bag.
- They could do this when international prices were at reasonable levels.
- But the global prices of fertilisers and inputs have surged in the past 6-7 months which has made it unviable for companies to sell at the old rates.

### What do the companies do now?

- Now all the companies have raised their MRPs including the country's biggest seller, Indian Farmers Fertiliser Cooperative (Iffco).
- Since non-urea fertilisers are decontrolled, so these companies went for such steep price hikes.
- But Iffco declared that the higher MRPs will be only for newly produced/imported fertilisers and old stocks would continue to be sold at the earlier rates.

### What happened now?

- As the old stocks started running out, the companies started selling the new material at the higher rates.
- Since April was a lean month for fertiliser sales, the extent of price increase was not drastic.
- The prices started increasing only when the purchases started picking up from around the second week of April-ahead of the kharif planting season.

### What has the government now done?

- Earlier Department of Fertilisers had notified the NBS rates for 2021-22 which was kept unchanged from last year's levels thereby leaving companies little choice but to go ahead with the MRP hikes.
- But recently a historic decision was taken by the centre to increase the subsidy on DAP from the existing Rs 10,231 per tonne (Rs 511.55/bag) to Rs 24,231 per tonne (1,211.55/bag).
- The Department of Fertilisers too has notified a higher NBS rate for P (from Rs 14.888 to Rs 45.323/kg), while keeping those for the other three nutrients (N, K and S) unchanged.
- This will enable companies to sell DAP at the earlier MRP, though not MOP and other complex fertilisers.
- This will help farmers to start their sowing operations from next month with the arrival of the southwest monsoon rains.



## 10.2 Making India Atmanirbhar in Oilseeds

### What is the issue?

- At India's Trade Policy Review meeting and WTO meetings, several commodity exporting countries had raised concerns over India's agriculture trade policies.
- Among them, oil seeds is an important commodity; here is a look at the trade-related aspects of it.

### What are the concerns raised?

- Agricultural commodities in question include pulses and vegetable oils that India imports in sizeable quantities.
- The US and the EU flag certain trade-related issues including increase in import duties.
- They also raise certain questions about India's agricultural support programmes such as the minimum support price for various crops.
- At the recent WTO Committee on Agriculture meeting, member-countries questioned India on various issues including -
  - i. continued restrictions on pulses import
  - ii. wheat stockpiling
  - iii. short-term crop loans
  - iv. export subsidies for skimmed milk powder
  - v. export ban on onions
- The latest attack is on India's ambitious plan to step up domestic oilseeds output so as to reduce dependence on vegetable oil imports.
- [It costs roughly \$10 billion (about ₹75,000 crore) in foreign exchange annually for bringing in 13-14 million tonnes of palm, soybean and sunflower oils.]
- WTO member-countries are questioning India mainly regarding incentives to oilseed growers to boost output.

### What is to be noted here?

- One, other countries have no business to question, so long as the incentives are well within the permissible limits.
- Second, there are ways India can boost domestic oilseeds output even without direct financial incentives or monetary support to growers.

### What is the flaw with vegetable oil imports policy?

- Raising the Customs duty on vegetable oil imports has hardly had any positive impact on domestic oilseeds production in the last 25 years.
- Notably, more often, vegetable oil imports are excessive and speculatively driven.
- As a result, building large inventory of low-priced imported oils depresses domestic oilseeds prices.
- It consequently discourages oilseed growers.
- This has been going on for two decades and must be stopped.

### What does this call for?

- Instead of the tariff route, India should look at the trade policy.
- The system of contract registration and monitoring of imports present for steel and copper should be extended to vegetable oils.
- The government must mandate that all vegetable oil import contracts must be registered with a designated authority.
- Contract details will include quantity contracted for, type of oil, origin, price and expected arrival time.

## 11. ENVIRONMENT

### 11.1 Net Zero Emissions by 2050 and India

#### What is the issue?

With increasing emphasis on achieving the net-zero emission target by 2050, here is an assessment of its suitability for India.

#### What is net-zero emissions?

- The net-zero emission target aims that by 2050, the net carbon emissions of the countries would be balanced by carbon sequestration and removal to the same extent.
- It should thus contribute net-zero carbon to the environment.
- This would help keep the rise in temperatures to within 1.5°C of the pre-Industrial Revolution temperature, thus preventing climate change.
- Europe, Japan and South Korea have announced net zero by 2050, and China before 2060.

#### How does it suit India's case?

- The power generation capacity in India is about 380 GW.
- Of this, about 62% is thermal (mainly coal, 53% of total).
- The celebrated Hechsher-Ohlin theorem tells that a country's competitive advantage should be based on its abundant resource.
- As known, India is abundant in coal.
- In this light, adopting a net-zero carbon goal by 2050 would be a sub-optimal strategy for India.

#### Why is net-zero by 2050 unfeasible for India?

- India is the third-largest carbon emitter in the world, after China and the US.
- However, Indian per-capita carbon emissions are an eighth of those of USA and less than a third of China.
- The developed countries have used the emissions route to development, while India is still developing.
- Also, any substantive compensation mechanism from the developed world to the developing world in terms of finances and technology has not materialised.
- So, any pre-mature adoption of the net-zero targets will mean that the vast proportion of India's population remain in poverty for generations.

#### What alternatives does India have?

- India is already among the very few countries which are well on their path to achieving their voluntary Nationally Determined Contributions (NDCs).
- This is part of the Paris Accord (Conference of Parties 21, or COP 21, Paris, 2015).
- This includes decreasing the carbon intensity of its GDP by 33-35% compared to 2005 levels by 2030.
- Also, the non-fossil fuel capacity of the total electricity capacity of the country would have to go up to 40% by 2030.
- Also, the country has accordingly planned for renewable capacity of 450 MW by that year.
- There is progress in solar power sector such as grid parity and favourable auction prices.
- So, the renewable energy (RE) transition is already helping achieve India's voluntary obligations aimed at preventing disastrous climate change.

#### What are the challenges though?

- The relentless rise of renewables has thrown up a number of challenges which would become more acute as the RE proportion increases.



- Important among them is the increasing financial unsustainability of the power distribution sector, dominated by the public sector distribution companies (discoms).
- Competition in power distribution will increase because of the coming of age of RE.
- So, the largest and the best consumers of the discoms would start to source power from the cost effective RE sources, using open access in power distribution.
- The problem is that this would lead to decreasing demand of power from the discoms.
- Consequently, there would be lower capacity utilisation (plant load factor is already below 54% currently) in the power generation sector.
- While this is true, the discoms have already entered into long-term power purchase agreements with mainly thermal and coal-based power generating companies.
- So, they would have to pay the fixed cost of power, further adversely affecting their financials.
- This would lead to more stranded thermal power assets, adding to the non-performing asset (NPA) problem of the banks.
- The cost of these would ultimately devolve on the government.

#### **What should be the optimal strategy given these?**

- Continuing with coal-first strategy would mean loss of cost competitiveness and increasing financial unsustainability of the sector.
- Also, there would be increasing challenges to financing new coal-based power plants by financial institutions owing to environmental, social and governance (ESG) considerations.
- On the other hand, pushing more RE (say, tidal power and offshore wind) based on subsidies would make the discoms more financially unsustainable.
- So, the optimal strategy may be to stop all subsidies for all sources of power, including large hydro, where the capital costs are estimated at over Rs 10 crore per MW.
- In place, the market forces should be allowed to take charge.
- This is likely to result in more share for RE because of its increasing cost competitiveness, with consequent impact on conventional coal-based power.
- Nevertheless this can be allowed. E.g. in Britain, the share of electricity generated by coal fell from 40% in 2013 to 2% in H1 2020.
- This strategy would imply that there is no forced adoption of net-zero commitments by 2050 by India.

### **11.2 Need for Environmental Tax Reforms - Eco Tax**

#### **What is the issue?**

- The increased need for spending on health and the mounting fiscal deficit makes sustained health financing in India a huge challenge.
- In this context, here is a look at the what and why of environmental tax as alternative sources of revenue.

#### **How is household spending on health?**

- As per WHO data, in India in 2011, 17.33% of the population made more than 10% of their income as out-of-pocket payments on health.
- The percentage was higher in rural areas compared to urban areas.
- Globally, the average was 12.67%.
- Similarly, 3.9% of the population in India made more than 25% of out-of-pocket payments on health, with 4.34% in the rural areas.

#### **What is the policy suggestion?**

- The National Health Policy of 2017 suggested increasing the public spending on health from 1% to 2.5-3% of GDP.



- The Economic Survey 2019-20 noted that doing so could decrease out-of-pocket expenditure from 65% to 30% of overall healthcare expenses.
- The COVID-19 pandemic necessitated countries to rethink climate change and the need for preservation of the environment.
- Considering these two, the need for alternate sources of health financing through 'fiscal reforms for managing the environment' is increasingly felt.

### **What are the available options?**

- Environment regulation may take several forms:
  - i. command and control
  - ii. economic planning/urban planning
  - iii. environmental tax (eco tax)/subsidies
  - iv. cap and trade
- India currently focuses majorly on the command-and-control approach in tackling pollution.
- So, environmental tax reforms could now be considered as an option.
- This generally involves three complementary activities:
  1. eliminating existing subsidies and taxes that have a harmful impact on the environment
  2. restructuring existing taxes in an environmentally supportive manner
  3. initiating new environmental taxes / eco tax

### **How about the eco tax?**

- An eco tax involves evaluation of the damage to the environment based on scientific assessments.
- This would include the adverse impacts on the health of people, climate change, etc.
- Ideally, the eco tax rate should be equal to the marginal social cost arising from the negative externalities of a project.
- This applies to externalities associated with the production, consumption or disposal of goods and services.

### **How should eco tax be in India's case?**

- The success of an eco tax in India would depend on its architecture i.e. how well it is planned and designed.
- In India, eco taxes can target three main areas:
  1. differential taxation on vehicles in the transport sector purely oriented towards fuel efficiency and GPS-based congestion charges
  2. in the energy sector, taxing fuels which feed into energy generation
  3. waste generation and use of natural resources
- There is also a need to integrate environmental taxes in the GST framework.
- It is also essential that the eco tax regime remains credible, transparent and predictable.

### **What is the likely effect?**

- The implementation of an environmental tax in India will have three broad benefits: fiscal, environmental and poverty reduction.
- It can mobilise revenues to finance basic public services.
- It can also be used to reduce other distorting taxes such as fiscal dividend.
- In developing countries like India, it can be used for the provision of environmental public goods and addressing environmental health issues.
- It helps internalise the externalities, and the said revenue can finance research and the development of new technologies.



- But, environmental regulations may also have significant costs on the private sector in the form of slow productivity growth and high cost of compliance, possibly resulting in price increase.
- However, global experiences suggest negligible impact on the GDP, though such revenues have not necessarily been used for environmental considerations.
- Considering all these, this is the right time for India to adopt environmental fiscal reforms.

## **12. SCIENCE & TECHNOLOGY**

### **12.1 Patents and COVID**

#### **What is the issue?**

Patents are restricting the access of essential technologies to many countries for providing early and affordable services to counter pandemic.

#### **How patents are threat in combating the pandemic?**

- No country is safe till every country is safe and a global threat of this magnitude needs a global thrust to counter it.
- Patents restrict access to essential technologies and reduce the ability of many countries to provide early and affordable services needed for an effective and equitable response.
- This is true not only of vaccines but also of several technologies for testing, treatment, prevention and personal protection.
- There is glaring disparities in access to each of these, at all stages of the pandemic.

#### **Why patents should exist?**

- Industries invest a lot of money into discovery and development of innovative products and therefore entitled to earn profits.
- This will also incentivise them to invest in fresh product development.
- It is stated that only certain industries had the expertise and experience to work with complex technologies and deliver products of assured quality and safety.
- These vaccine developers are located in high income countries.
- So they propose the idea of licensing to manufactures in low and middle income countries.

#### **What does licensing imply?**

- India supplies over 60% of the vaccines for the universal immunisation programmes for women and children.
- The alternative of licensing to the manufacturers in low- and middle-income countries is deceitful.
- Vaccine developers contract to large-scale manufacture only to reduce labour costs through cheaper hired help.
- Also, the terms of licensing contracts are often obscure, without clarity on level of vaccine access to the country which is making it, level of tiered pricing or the extent of profit sharing.
- Therefore, licensing with technology transfer and patent waivers are not mutually exclusive.
- Both can proceed apace and let more manufacturers gear up to protect the world against present or future pandemics.

#### **What was India's approach earlier?**

- It must be remembered that India moved from product patenting to process patenting in 1972.
- This gave the Indian pharmaceutical industry a huge boost where generic drugs were manufactured in large scale which helped the world to gain access to essential drugs.
- Cipla providing much needed anti-HIV drugs in Africa reflects the idea of global health equity.



- If India had succumbed to global pressures to protect patent rights, the story of Indian pharmaceutical industry would have been sadly very different.

#### What are the takeaways?

- It is well established that much of the foundational research that goes into drug and vaccine development in high income countries has been financed by public funding.
- This is done through research grants provided to universities and research laboratories.
- The scientists working in pharmaceutical companies of high-income countries were originally educated in low- and middle-income countries.
- Therefore, the world should benefit from collective intellectual collaboration not from restrictive barriers that lock innovation into patent prisons.

## 12.2 5G Trials

### Why in news?

Recently, Department of Telecommunications has allowed state-run and private telecoms to start trials for 5G technology.

### What is 5G technology?

- 5G or fifth generation is the latest upgrade in the long-term evolution mobile broadband networks.
- It offers exponentially faster download and upload speeds, delivers multi-Gbps (giga bits per second) peak rates and has ultra-low latency.
- It mainly works in 3 bands, namely low, mid and high-frequency spectrum — all of which have their uses and limitations.

### What are the various bands in the Spectrum?

- **Low band:** This spectrum has shown great promise in terms of coverage and speed of internet and data exchange and the maximum speed of this band is limited to 100 Mbps (Megabits per second).
- This means that telecoms can use and install it for commercial cell phone users who do not have specific demands for very high speed internet.
- **Mid-band:** This spectrum offers higher speeds compared to the low band but it has limitations in terms of coverage area and penetration of signals.
- Telecoms, which have taken the lead on 5G, have indicated that this band may be used by industries and specialised factory units.
- This is used to the build captive networks that can be moulded according to the needs of that particular industry.
- **High-band:** This spectrum offers the highest speed of all the three bands but it has extremely limited coverage and signal penetration strength.
- The internet speeds is tested to be as high as 20 Gbps, while, in most cases, the maximum internet data speed in 4G is recorded at 1 Gbps.

### How are telecoms functioning in the market?

- Currently, the telecom market in India is left with only three private telecoms.
- Rest of the companies have surrendered due to the low returns on investments over the years.
- Apart from the private telecoms, two state-run companies, MTNL and Bharat Sanchar Nigam Limited (BSNL) have survived but they are too making losses.
- Earlier standing committee of Lok Sabha on Information Technology censured the government for certain reasons.
- This includes delays in approvals, inadequate availability of spectrum, high spectrum prices, poor development of use cases and low status of fiberisation among others.
- For this reason, the panel said that India could miss the 5G bus.





### Why are the trials for 5G technology important?

- By conducting trials in a variety of circumstances (semi-urban and rural areas), telecoms will offer the new 5G technology as soon as possible.
- This will increase their average revenue per user and provides an opportunity to expand to the untapped market.
- Also, it is important for the government to roll out the new technology as soon as possible.

### How 5G trials will be conducted?

- In the initial phase, the trials will be for 6 months, including a 2-month period for procurement and setting up of the equipment.
- In these 6 months, telecoms will be required to test their set up in urban areas, semi-urban areas as well as rural areas.
- During this period, they will be provided with experimental spectrum in various bands- mid-band of 3.2 GHz to 3.67 GHz, millimeter wave band of 24.25 GHz to 28.5 GHz, and others.

## 12.3 TRIPS waiver

### What is the issue?

The member countries of the WTO are under an obligation to ensure that their domestic IPR laws conform to the TRIPS agreement.

### Why waiver is needed?

- When the pandemic hit the globe, India and South Africa proposed to waive key provisions of the TRIPS agreement on COVID-19 vaccines, drugs, therapeutics, and related technologies.
- This ensures that patents do not become barriers in scaling up production of medical products essential to combat COVID-19.
- The proposal is essential because it would give immunity to member countries from a legal challenge at the WTO if their domestic IPR laws do not enforce IP protection on COVID-19 medical products.

### How Compulsory Licensing helps in waiver?

- It is uncertain when the TRIPS waiver would be adopted and what are the conditions it would be subjected to.
- So India can use the existing flexibilities under the **Patents Act of 1970**, such as compulsory licences.
- This is consistent with the TRIPS agreement and will increase the supply of COVID-19 medical products.
- Natco, an Indian pharmaceutical company, has requested a compulsory licence for Baricitinib, a COVID-19 drug.
- Incyte Holdings Corporation owns the patent for Baricitinib with a licence to Eli Lilly, an American drug company.

### What are the problems in this?

- The government hasn't made use of compulsory licences in the pandemic.
- The Central government, in an affidavit filed before the Supreme Court says that issuance of compulsory licences will not be effective.
- It mentions that the main constraint in boosting the production of drugs like Remdesivir is the unavailability of raw materials and essential inputs which is a supply side issue and not the legal hurdle.
- Thus, the government believes that voluntary licences, not compulsory licences, is the way forward to address shortage of COVID-19 medical products.

### What can be done now?

- The first step in advocating for the removal of IPR-related impediments is to use the existing lawful means to lift the obstacles that come in the way of manufacturing patented products domestically.
- Government can now use the Sections 92 and 100 of Patents Act to license all patents necessary to make COVID-19 medical products, without waiting for a private party to apply for a licence.



- This will have the advantage of forcing several pharmaceutical companies to offer licences voluntarily.

#### **What more can be done?**

- India has developed Covaxin with the taxpayers' money and the government has a stake in its IPR.
- Hence it should not only transfer Covaxin's technology to domestic pharmaceutical companies, to boost national supplies, but also offer it to foreign corporations.
- This will upkeep India's reputation of being the pharmacy of the world and also put pressure on developed countries to transfer their vaccine technology to developing countries.
- Also, India must take a consistent stand on IPRs on COVID-19 medical products internationally and domestically.

### **PRELIM BITS**

## **13. HISTORY, ART & CULTURE**

#### ***Tentative List of UNESCO World Heritage Site***

- The Archaeological Survey of India forwarded the Maharashtra government's tentative serial nomination seeking the World Heritage Site tag for 14 forts, to UNESCO through the Ministry of Culture.
- These 14 forts are from the era of 17th century Maratha king Chhatrapati Shivaji Maharaj on the theme of Maratha Military Architecture in Maharashtra.
- **Tentative Lists** - The UNESCO has accepted the serial nomination in Tentative Lists of its World Heritage Site (WHS).
- According to the World Heritage Convention's guidelines, a tentative list is an "inventory" of properties a country believes deserves to be a WHS.
- After UNESCO includes a property in the Tentative List, that country has to be preparing a nomination document that will be considered by the UNESCO World Heritage Committee.
- **WHS** - A WHS is a location with a cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity".
- The list of WHS is maintained by the international 'World Heritage Programme', administered by the UNESCO World Heritage Committee.

#### **The 14 Forts in Maharashtra's proposal**

- **Raigad Fort or Rairi Fort** - It is built on a large wedge of a hill in the Sahyadris, separated from the main range by a ravine.
- The capital fort of the Maratha Empire, it was rebuilt for the coronation of Chhatrapati Shivaji Maharaj.
- **Rajgad Fort** - Hill fort in Pune district, capital of the Maratha Empire under Shivaji for 26 years, before the capital moved to the Raigad Fort.
- **Shivneri Fort** - Near Junnar in Pune district. It is Shivaji's birthplace, and an example of Bahamani/Nizamshahi architecture providing a backdrop to narrative of guerrilla warfare.
- **Torna Fort** - It was captured by Shivaji in 1646, and this marked the beginning of the Maratha empire.
- **Lohagad** - Close to Lonavala, it is an example of Maratha hill fort architecture until Peshwa period.
- **Salher Fort** - One of the highest forts in Sahyadris, located in Dolhari range, Nashik. Battle of Marathas and Mughals happened here in 1672.
- **Mulher Fort** - Surrender of Mulher in Nashik ended 3<sup>rd</sup> Maratha War.
- **Rangana Fort** - Aurangzeb tried to conquer this fort in Kolhapur along with Bhudargad and Samangad in his Deccan campaign, did not succeed.



- **Ankai Tankai Forts** - In Nashil district, Ankai and Tankai are separate forts on adjacent hills, with a common fortification wall.
- **Kasa Fort or Padmadurg** - It was built on a rocky island off coast of Murud, and provided a base for naval military operations.
- **Sindhudurg Fort** - This sea fort was built by Shivaji in 1668. A masterpiece in military defence.
- **Alibag Fort or Kulaba Fort** - One of the Naval base of Shivaji.
- **Suvarnadurg** - Built on an island, it was repaired by Shivaji in 1660.
- **Khanderi Fort** - It is located in Khanderi or Kanhoji Angre Island. Built in 1679, Khanderi Fort was the site of many battles between Shivaji Maharaj's forces and the navy of the Siddhis.

### **Hakki-Pikki Tribes**

- Hakki-Pikki community of **Karnataka** has been severely impacted by the Covid-19. They are Scheduled Tribes in Karnataka.
- Hakki Pikki (literally **bird hunters**) are a semi-nomadic tribe who have travelled and lived in various parts of the country.
- Alternate names of the Hakkipikki are Haranashikari, Pashi pardhi, Adavichencher and Shikari in Karnataka as per the available materials.
- As part of a 'rehabilitation drive' by the Government of Karnataka in the 1950s and '60s, they were forced out of their forest dwellings and brought into the edges of cities like Bengaluru, Mysuru, Hassan etc.
- **Language** - Though the community lives in Southern part of India surrounded by Dravidian languages, they speak Indo Aryan language called 'Vaagri'. This is because they migrated from the Northern India.
- The UNESCO has listed Hakkipikki is one of the endangered languages.
- **Uniqueness** - The tribe follows a curious naming practice (or used to at least), where the parents named their new born child after the first word that came to their mind. Eg: Doctor, English, British, Gun, etc.,

## **14. GEOGRAPHY**

### **Mount Sinabung**

- Mount Sinabung, located in the Karo regency, North Sumatra province of Indonesia erupted, belching volcanic ash and smoke 3,000 metres into the sky.
- The volcano has been active since 2010 when it erupted after nearly 400 years of inactivity.
- The eruptive phase began in September 2013 and continued uninterrupted till June 2018, according to the National Museum of Natural History's Global Volcanism Program.
- Indonesia is home to many active volcanoes owing to its location in the "Ring of Fire" or the Circum-Pacific Belt - an area along the Pacific Ocean characterised by active volcanoes and frequent earthquakes.

### **Volcanic Eruption**

- Basically, there are three types of volcanoes — active, dormant or extinct.
- An eruption takes place when magma (a thick flowing substance), that is formed when the earth's mantle melts, rises to the surface.
- As magma is lighter than rock, it rises through vents and fissures on the surface of the earth. Following eruption, the magma is called lava.
- Not all volcanic eruptions are explosive since explosivity depends on the composition of the magma.
  1. If the magma is runny and thin, gases can easily escape it. In such cases, the magma will flow out towards the surface.



2. If the magma is thick and dense and gases cannot escape it, it builds up pressure inside resulting in a violent explosion.

- **Vulnerable** - The most common cause of death from a volcano is suffocation, making people with respiratory conditions such as asthma and other chronic lung diseases susceptible.
- People living close to the volcano or in low-lying downwind areas are also at higher risk in case of an explosion since the ash may be gritty and abrasive and small particles can scratch the surface of the eyes.
- Volcanic eruptions can result in additional threats to health - Floods, mudslides, power outages, drinking water contamination and wildfires.
- Lava flows, however, rarely kill people since it moves very slowly, giving enough time to escape.

### **Age of Plate Tectonics**

- A study on the oldest minerals on the Earth **Zircon crystals** (4.3 billion years old) of Jack Hills, Australia revealed that the plate tectonics are 3.6 billion years old and they are moving continuously since they emerged.
- Previously, researchers thought that these plates formed anywhere from 3.5 to 3 billion years ago.
- **Zircon Crystals** are dense, so it was easy to separate them from the rest of the sand by using a method akin to gold panning.
- The researchers studied the uranium content (a radioactive element with a known rate of decay) of each zircon to determine their age.
- They also studied the aluminum content to know about the Earth's crust thickening on at that time.
- **Plate tectonics** refers to how humongous slabs of solid rock glide over Earth's mantle, the layer just below the crust.
- These continental slabs shift, fracture and collide, causing earthquakes to occur, mountains to grow and oceans to form.
- Besides Earth, no other known planetary bodies have plate tectonics.
- **Significance** - Rocks capture carbon dioxide, a greenhouse gas that helps to warm Earth (but too much CO<sub>2</sub> can lead to global warming).
- Plate tectonics ensures that these rocks eventually get dragged down and melted, and their CO<sub>2</sub> is spewed out as gas through volcanoes. Without this process, Earth might freeze.

### **Tropical Cyclone Naming**

- Cyclone Yaas is the name of the cyclonic storm that was formed over north Andaman Sea and adjoining east Central Bay of Bengal.
- Oman named this cyclone as 'Yaas', which refers to a tree with good fragrance, the word is similar to Jasmine.
- **Naming** - Cyclones that form in every ocean basin across the world are named by the six regional specialised meteorological centres (RSMCs) and Tropical Cyclone Warning Centres (TCWCs).
- As an RSMC, the India Meteorological Department (IMD) names the cyclones developing over the north Indian Ocean, including the Bay of Bengal and Arabian Sea.
- The IMD is also mandated to issue advisories to 12 other countries in the region on the development of cyclones and storms.
- The WMO/ESCAP (World Meteorological Organisation/United Nations Economic and Social Commission for Asia and the Pacific) started naming the cyclones in the region in 2000.
- The countries that name the cyclones are Bangladesh, India, the Maldives, Myanmar, Oman, Pakistan, Sri Lanka, Thailand, Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen.
- After each country sent in suggestions, the WMO/ESCAP Panel on Tropical Cyclones (PTC) finalised the list.
- **Guidelines to adopt names of cyclones -**



- a) The proposed name (maximum length=eight letters) of tropical cyclone over the north Indian Ocean should be new.
- b) It must be neutral to politics and political figures, religious believes, cultures and gender.
- c) It must be chosen in such a way that it doesn't hurt the sentiments of any group over the globe
- d) It should be short, easy to pronounce and should not be offensive to any member, or not be very rude and cruel in nature

### ***Srivilliputhur-Megamalai Tiger Reserve***

- In February 2021, the Srivilliputhur-Megamalai Tiger Reserve (SMTR) was jointly declared by the Centre and Tamil Nadu governments by clubbing together the Megamalai WLS and the Srivilliputhur WLS.
- The declaration of SMTR could reduce the problems faced by the River Vaigai, as the formation of a tiger reserve has many advantages.
- The staffs who work here are given pay benefits to motivate them to carry out their work with zeal. They are provided with special training and equipped with latest gadgets and weapons to tackle illegal activities.
- Whatever funds are provided by the National Tiger Conservation Authority, are directly allotted to the concerned tiger reserve.
- Due provisions are made for giving compensation for damage caused by wildlife to agricultural and horticultural crops as well as injuries caused and deaths of humans and livestock.
- By protecting wild animals, the natural forests, their habitats which act as watersheds, are given protection. If forests are revived through proper protection, we can be ensured of perennial water supply.

### ***Vaigai River***

- The Vaigai is a 'heritage river' as it has seen the rise and fall of human civilisation for centuries. The river is mentioned in Sangam literature.
- The 258-kilometres long river originates in the Western Ghats. It travels through the Pandya Nadu region of Tamil Nadu and finally empties into the Palk Strait near the Pamban Bridge in Ramanathapuram district.
- Its main tributaries are Suruliyaru, Mullaiyaru, Varaganadhi, Manjalaru, Kottagudi, Kridhumaal and Upparu.
- The river fulfils the drinking water requirement of five districts of Tamil Nadu - Theni, Madurai, Ramnathapuram, Sivagangai and Dindigul.
- **Deterioration** - Vaigai started to deteriorate at the end of the 18th century when the British started deforesting the Megamalai region (major catchment for Vaigai) for commercial plantations.
- Consequently, the water flow in the river reduced gradually. Following the Great Famine of 1876-77, Major John Pennycuik built a dam at the confluence of Mullaiyar and Periyar rivers that was completed in 1895.
- After completion of the dam, the water from the Periyar was successfully brought to the Vaigai, which revived again.
- The Vaigai presently gets about 80% of its water from the Periyar dam. The balance 20% is obtained from the major watershed of the Megamalai region during the northeast monsoon season.
- Due to indiscriminate removal of sand from the river, water flowing into the Vaigai gets drained within a few days.

### ***Mekedatu***

- The National Green Tribunal (NGT), Southern Zone, has appointed a joint committee to look into allegations of unauthorised construction activity taking place in Mekedatu, Karnataka.
- Mekedatu (means 'goat's leap') is a gorge along Kaveri where Arkavati merges with Kaveri. From this point, about 3.5 kilometers downstream, the river Kaveri flows through a deep and narrow gorge.
- In 2017, the Karnataka government had proposed to construct a dam in Mekedatu across the Cauvery River.
- This project received approval from the erstwhile Ministry of Water Resources for the detailed project report. It was opposed by Tamil Nadu government.

## 15. POLITY

### Star Campaigners

- They are **celebrity vote seekers** in an election for a party, who can be a politician or even a film star.
- They are nominated by the concerned political parties specifying their constituencies and duration of the status.
- There is no law governing who can or cannot be made a star campaigner.
- Since political parties appoint star campaigners, the Election Commission of India (ECI) has issued guidelines the Model Code of Conduct regulating poll campaign by them.
- **Numbers** - A 'recognised' party can nominate a maximum of 40 star campaigners.
- An unrecognised political party can nominate a maximum of 20 star campaigners.
- **Need for a star campaigner** - The ECI keeps a tab on expenditure incurred by individual candidates during campaign - Rs. 70 lakh for most states in one constituency by each candidate.
- Expenditure incurred on electioneering by the star campaigner is not added to a candidate's poll expenditure giving him/her more scope for expenditure.
- However, for an individual candidate to get relief from campaign expenditure, the star campaigner has to limit oneself to general campaigning for the party.
- According to the Representation of People's Act, these expenses will be borne by the political parties.
- **Prime Minister** - The MCC guidelines say when a PM or a former PM is star campaigner, the expenditure incurred on security including on the bullet-proof vehicles will be borne by the government.
- However, if another campaigner travels with the prime minister or a former minister, the individual candidate will have to bear 50% of the expenditure incurred on the security arrangements.

### Section 142 of the Social Security Code

- Section 142 of the Social Security Code, 2020 has been notified by Ministry of Labour & Employment covering applicability of Aadhar.
- It will enable Labour Ministry to collect Aadhar details for the database of beneficiaries under various social security schemes.
- National Data Base for Unorganised Workers (NDUW) is at an advanced stage of development by National Informatics Centre.
- The portal is aimed at **collection of data for unorganised workers** including migrant workers for the purpose of giving benefits of the various schemes of the Government.
- An inter-state migrant worker can register himself on the portal on the basis of submission of Aadhar alone.

### Constitutionality of IPC's Section 124A

- The Supreme Court agrees to examine the constitutionality of the Indian Penal Code's (IPC's) Section 124A (the law against sedition).
- **Section 124A** defines sedition as an offence committed when a person by words or visible representation or otherwise, attempts to bring into hatred or contempt or to excite disaffection towards the government.
- Disaffection includes disloyalty and all feelings of enmity.

#### Kedarnath Singh Case 1962

- The SC upheld the constitutionality of the sedition law saying Article 19(2) that imposes reasonable restrictions on freedom of speech.
- However, it circumscribed the application of the law to Acts involving intention or tendency to create disorder, or disturbance of law and order, or incitement to violence.
- It specifically narrowed down its scope in order to protect dissent.
- It said the comments (even strongly worded) expressing disapprobation of the Government actions, without exciting the feelings which generate the inclination to cause public disorder by violence wasn't sedition.



- **Punishment** - Sedition is a non-bailable offence. Punishment ranges from imprisonment up to 3 years to a life term, to which fine may be added.
- A person charged under this law is barred from a government job.
- They have to live without their passport and must produce themselves in the court as and when required.
- **Current Situation** - The indiscriminate application of the law is perhaps why charges don't seem to stick often.
- In Disha Ravi matter, the SC said that citizens can't be put behind the bars just because they disagree with the state policies. Sedition offence cannot be invoked to minister to the wounded vanity of the governments.
- To know more about the Sedition Law, [click here](#).

### **Identifying Backward Classes**

- The Supreme Court ruled that after the passage of the 102nd Constitution Amendment Act in 2018,
  1. The States do not have any power to identify 'socially and educationally backward' (SEBC) classes.
  2. Only the President can publish a list of backward classes in relation to each State and only Parliament can make inclusions or exclusions in it.
- The Supreme Court has directed the Centre to notify the list of SEBCs for each State and Union territory, and until it is done, the present State Lists may continue to be in use.
- The Union government argued that it was never its intention to deprive State governments of their power to identify SEBCs.

### **102<sup>nd</sup> Amendment Act, 2018**

- It established a five-member National Commission for Backward Classes by adding Article 338B to the Constitution.
- The Commission was tasked with monitoring safeguards provided for SEBCs, giving advice on their socio-economic development, inquiring into complaints and making recommendations, among other functions.
- Significantly, it was laid down that the Centre and the States shall consult the Commission on all policy matters concerning the SEBCs.
- The Amendment also added Article 342A, under which the President shall notify a list of SEBCs in relation to each State and Union Territory, in consultation with Governors of the respective States.
- Once this 'Central List' is notified, only Parliament could make inclusions or exclusions in the list by law.
- This provision is drafted in exactly the same word as the one concerning the lists of Scheduled Castes and Scheduled Tribes.
- Further, it defines 'SEBCs' as such backward classes as are so deemed under Article 342A for the purposes of this Constitution.

### **Tribunals Reforms Ordinance 2021**

- The Tribunals Reforms (Rationalisation and Conditions of Service) Ordinance 2021 has been challenged in the Supreme Court as no judicial impact assessment was conducted prior to abolishing the tribunals.
- It has abolished appellate tribunals and authorities (such as the Film Certification Appellate Tribunal) under nine laws without stakeholder consultation and transferred their jurisdiction to other judicial bodies.
- The Nine laws amended are,
  - 1) The Cinematograph Act, 1952.
  - 2) The Trade Marks Act, 1999.
  - 3) The Copyright Act, 1957.
  - 4) The Customs Act, 1962.
  - 5) The Patents Act, 1970.

- 6) The Airports Authority of India Act, 1994.
  - 7) The Control of National Highways (Land and Traffic) Act, 2002.
  - 8) The Geographical Indications of Goods (Registration and Protection) Act, 1999.
- The Ordinance has amended the Finance Act 2017 to include provisions related to the composition of search-cum-selection committees, and term of office of members in the Act itself.
    - 1) It has incorporated the suggestions made in Madras Bar Association v. Union of India (2020) on the composition of the committee and its role in disciplinary proceedings.
    - 2) But, it has fixed four-year tenure for Chairpersons and members of tribunals and ignored the court's order for fixing a five-year term.
  - The Centre is yet to constitute a National Tribunals Commission (NTC).

### Judicial Impact Assessment

- Judicial Impact Assessment was introduced in the Supreme Court's order in Rojer Mathew v. South Indian Bank, 2019.
- It is a methodology to calculate the workload change that the judiciary has to bear due to procedural or substantive law changes and then calculating the expected indicative costs for the same change.
- It is a process whereby the government can anticipate the likely cost of implementing legislation through the courts and help deliver timely justice to litigants.
- Technically, operational impact has the most obvious effect on the courts and it is the most frequently addressed impact in JIA.

### National Tribunals Commission

- The idea of an NTC was first mooted in L. Chandra Kumar v. Union of India (1997).
- The NTC must be established vide a constitutional amendment or be backed by a statute that guarantees its independence.
- It is an independent umbrella body to,
  - 1) Supervise the functioning of tribunals,
  - 2) Function as an independent recruitment body to develop and operationalise the procedure for disciplinary proceedings and appointment of tribunal members.
  - 3) Take care of tribunals' administrative and infrastructural needs,
- The NTC could pave the way for the separation of the administrative and judicial functions carried out by various tribunals.
- A 'corporatised' structure of NTC with a Board, a CEO and a Secretariat will allow it to scale up its services and provide requisite administrative support to all tribunals across the country.
- As the Finance Ministry has been vested with the task for tribunals until the NTC is constituted, it must come up with a transition plan.

### Article 311

- Sachin Waze was dismissed from service by Mumbai Police Commissioner under Article 311 (2) (b) without a departmental enquiry.
- To know more about the Sachin Waze Case, [click here](#).
- **Article 311** safeguards civil servants by give them a chance to respond to the charges in an enquiry so that he/she is not arbitrarily dismissed from service with some exceptions.
- It puts certain restrictions on the absolute power of the President or Governor for dismissal, removal or reduction in rank of an officer.

#### Process of Departmental Enquiry

- In a departmental enquiry, after an enquiry officer is appointed, the civil servant is given a formal chargesheet of the charges.
- The civil servant can represent him/herself or choose to have a lawyer.
- Witnesses can be called during the departmental enquiry following which the enquiry officer can prepare a report and submit it to the government for further action.





- Safeguards under Article 311 are applicable only to civil servants, i.e. public officers, and not to defence personnel.
- Article 311 (1) - No government employee either of an all India service or a state government shall be dismissed or removed by an authority subordinate to the own that appointed him/her.
- Article 311 (2) - No civil servant shall be dismissed or removed or reduced in rank except after an inquiry in which s/he has been informed of the charges and given a reasonable chance to respond to the charges.
- **Exceptions** under Article 311 (2) are Article 311 (2) (a), Article 311 (2) (b) and Article 311 (2) (c)
  1. Article 311 (2) (a) - Where a person is dismissed or removed or reduced in rank on the ground of conduct which has led to his conviction on a criminal charge; or
  2. Article 311 (2) (b) - Where the authority empowered to dismiss or remove a person or to reduce him in rank is satisfied that for some reason, to be recorded by that authority in writing, it is not reasonably practicable to hold such inquiry; or
  3. Article 311 (2) (c) - Where the President or the Governor, as the case may be, is satisfied that in the interest of the security of the State, it is not expedient to hold such inquiry.

### **MLA-LAD Fund**

- Rajasthan Government to provide ₹3 crore each from the Member of Legislative Assembly Local Area Development (MLA-LAD) Fund to vaccinate people in the age group of 18 to 44 years against COVID-19.
  - For meeting the expenses, the fund for each legislator has been increased from ₹2.25 crore to ₹5 crore a year.
- The State Governments have been implementing MLALAD Fund on the lines of [Member of Parliament Local Area Development](#) (MPLAD) Fund.
- MLA-LAD Fund enables each MLA to undertake small developmental works in his/her constituency through the funds allocated each year.
- Under this scheme, funds will be provided in the State's Plan Budget every year. The MLALAD Scheme is intended to be utilised for small but essential projects/works based on the felt needs of the local public.
- MLAs do not receive any money under this scheme. The government transfers it directly to the respective local authorities.
- MLAs can only recommend works in their constituencies based on a set of guidelines.
- Amounts per MLA and the guidelines for use of MLA-LAD funds differ across the states.

## **16. GOVERNMENT INITIATIVES**

### **SAMVEDNA**

- Sensitizing Action on Mental Health Vulnerability through Emotional Development and Necessary Acceptance (SAMVEDNA) is a Toll-Free Helpline for Children.
- It was launched by the National Commission for Protection of Child Rights (NCPCR) to provide psycho-social first-aid and mental support for Children affected during COVID 19 Pandemic.
- It is provided on a toll-free No: 1800-121-2830 from Monday to Saturday from 10 a.m. to 1 p.m. and 3 p.m. to 8 p.m. in various regional languages.
- Tele counselling is provided to the children under three categories:
  1. Children who are in Quarantine/isolation/COVID Care centers.
  2. Children who have COVID positive parents or family members and near ones.
  3. Children who have lost their parents due to Covid-19 Pandemic.

### National Commission for Protection of Child Rights

- It is a statutory body set up in 2007 under the Commissions for Protection of Child Rights (CPCR) Act, 2005. It works under the aegis of Ministry of Women and Child Development, Govt. of India.
- Under the NCPCR, the Child is defined as a person in the 0 to 18 years age group.
- **Mandate** - To ensure that all Laws, Policies, Programmes, and Administrative Mechanisms are in consonance with the Child Rights perspective as enshrined in,
  1. The Constitution of India and
  2. The UN Convention on the Rights of the Child.
- It inquires into complaints relating to a child's right to free and compulsory education under the Right to Education Act, 2009.
- It monitors the implementation of Protection of Children from Sexual Offences (POCSO) Act, 2012.

### Mission for Integrated Development of Horticulture

- The Ministry of Agriculture and Farmers Welfare has provided an enhanced allocation of Rs. 2250 Crore for the year 2021-22 for 'Mission for Integrated Development of Horticulture' (MIDH).
- MIDH is a Centrally Sponsored Scheme implemented by the Agriculture Ministry from 2014-15 under Green Revolution - Krishonnati Yojana.
- **Objective** - MIDH aims for the holistic growth of the horticulture sector covering fruits, vegetables, root & tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, cocoa and bamboo.
- **Funding pattern** - The Government of India (GOI) contributes 60% for developmental programmes in all the states except in North East and Himalayan states, 40% share is contributed by State Governments.
- In the case of North Eastern States and Himalayan States, GOI contributes 90%.
- In case of National Horticulture Board (NHB), Coconut Development Board (CDB), Central Institute for Horticulture (CIH), Nagaland and the National Level Agencies (NLA), GOI contributes 100%.

S.No.	Sub-schemes of MIDH	Target group / Area of operation
1.	National Horticulture Mission (NHM)	Implemented by State Horticulture Missions in all states & UTs except states in NE and Himalayan Region.
2.	Horticulture Mission for North East & Himalayan States (HMNEH)	All states in NE and Himalayan Region - Arunachal, Assam, Manipur, Mizoram, Nagaland, Meghalaya, Sikkim, Tripura, Himachal Pradesh, Uttarakhand and J&K
3.	National Bamboo Mission (NBM)	All states & UTs
4.	National Horticulture Board (NHB)	All states & UTs focusing on commercial horticulture
5.	Coconut Development Board (CDB)	All States and UTs where coconut is grown
6.	Central Institute for Horticulture (CIH)	NE states, focusing on HRD and capacity building.

### Ethanol Blending Policy

- The Government of India has fixed target of 10% blending of fuel grade ethanol with petrol by 2022 & 20% blending by 2025.

- It has also allowed production of ethanol from **B-Heavy Molasses, sugarcane juice, sugar syrup and sugar**; and encouraging sugar mills to divert excess sugarcane to ethanol.
  - Target - To divert 50-60 LMT of excess sugar to ethanol by 2025.
- To increase production of fuel grade ethanol and to achieve blending targets, the Government has allowed use of **maize and rice** with Food Corporation of India (FCI) for production of ethanol.
- Government has fixed price of ethanol from maize as Rs 51.55/litre & rice available with FCI as Rs 56.87/litre for ethanol supply year 2020-21.
- In current ethanol supply year (ESY) 2020-21 (December to November) to achieve 8.5% blending target, about 325 Cr litres ethanol is required to be supplied to Oil Marketing Companies (OMCs).

### ***PLI Scheme for the Food Processing Industry***

- Ministry of Food Processing Industries (MoFPI) has launched an online portal for 'Production Linked Incentive Scheme for Food Processing Industry' (PLISFPI).
- This **Central Sector Scheme** 'PLISFPI' will be implemented for the period from 2021-22 to 2026-27. It is a part of Prime Minister's announcement of Aatmanirbhar Bharat Abhiyan.
- It will support **creation of global food manufacturing champions** commensurate with India's natural resource endowment and support Indian brands of food products in the international markets.
- The scheme has two components,
  1. It will provide sales based incentives for manufacturing of four major food product segments - Ready to Cook/ Eat (RTC/ RTE) foods, Processed Fruits & Vegetables, Marine Products, Mozzarella.
  2. It will provide grants for undertaking Branding & Marketing activities abroad.
- The sales based incentive would be paid from 2021-22 to 2026-27 on incremental sales over the base year. For the first 4 years, 5th & 6th years, base year would be 2019-20, 2021-22 & 2022-23 respectively.
- Applicants will be extended grant @ 50% of expenditure on branding & marketing abroad subject to a maximum grant of 3% of Sales of food products or Rs 50 crore per year, whichever is less.

### **Beneficiaries**

- Applicants may be Proprietary Firm or Partnership Firm or Limited Liability Partnership (LLP) or a Company registered in India (or) Co-operatives (or) SME. They will apply only through online portal.
- Category-I - Applicants are large entities who apply for Incentive based on Sales Exports, and Investment Criteria.
- Category-II - SMEs Applicants manufacturing innovative/ organic products who apply for PLI Incentive based on Sales, their product uniqueness, level of product development etc.
- Category-III - Applicants applying solely for grant for undertaking Branding & Marketing activities abroad, who will be selected based on the level of recognition of their Brand, sales, exports, etc.

### ***PRAYAAS Scheme***

- The Employees' Provident Fund Organisation (EPFO) sent the pension payment orders to the retiring employees under the Employees' Pension Scheme, 1995 through the "PRAYAAS" initiative.
- PRAYAAS is initiative of the EPFO to disburse pension payment order on the very day of retirement/ superannuation.

### ***National Building Code***

- Recent incidents of hospital fires have raised serious concerns.
- National Building Code (NBC) of India, published by the Bureau of Indian Standards, provides specifications and guidelines for design and materials that reduce the threat of destructive fires.
- Under the Code, all the existing and new buildings are classified by nature of use, such as residential, educational, institutional, assembly, business, mercantile, industrial, storage and hazardous.



- Hospitals come under the institutional category of the buildings.
- **Part 4** of the National Building Code deals with Fire and Life Safety.
  1. It covers the requirements for fire prevention, life safety in relation to fire and fire protection of buildings and the guidelines for fire drills and evacuations for high-rise buildings.
  2. It specifies occupancy-wise classification, constructional aspects, egress requirements and protection features that are necessary to minimise danger to life and property from fire.
  3. It specifies the demarcations of fire zones, restrictions on constructions of buildings in each fire zone, etc
  4. It classifies buildings based on occupancy, types of building construction according to fire resistance of the components and other restrictions and requirements necessary to minimise danger of life from fire, smoke or panic before the buildings are evacuated.

#### **Other Provisions**

- The Home Ministry's Directorate-General for Fire Services, Civil Defence & Home Guards says that the NBC is a "recommendatory document".
- The States have been asked to incorporate the Code into their building bylaws, making the recommendations a "mandatory requirement".
- The NBC recommends the location of buildings by type of use in specific zones to ensure that industrial and hazardous structures do not coexist with residential, institutional, office and business buildings.
- It specifies the technical requirements for special buildings, high rises, educational and institutional buildings higher than 9 metres, and those with an area of over 300 square metres.
- It drills down into the specifics of fire resistance based on the materials used - walls, floor, roof, fire check doors, fire enclosure exits, etc.
- Technologies to sound alerts in case of a fire and also to fight it are expected to be incorporated into buildings.
- However, the NBC says that for various types of buildings, in case of practical difficulty or to avoid unnecessary hardship, without sacrificing reasonable safety, local head, fire services may consider exemptions.

#### **Other Government Actions**

- The Centre announced that a Fire Safety Committee will conduct periodical audits on fire installation, ventilation, electrical sub-stations and other electrical equipment in the Union government's hospitals.
- The Union Health Ministry circulated strict guidelines stipulating third-party accreditation for fire safety and that a fire response plan should be in place.
- National Disaster Management Authority has stipulated requirements for fire safety in public buildings, including hospitals, which incorporate elements of the NBC, besides design guidelines and evacuation drills.

#### **BEAM Committee**

- The Central Government had constituted the 'BVLOS Experiment Assessment and Monitoring (BEAM) Committee' to invite Expression of Interest (EOI) to undertake BVLOS experimental flights of drones.
- For this, the Directorate General of Civil Aviation (DGCA) issued an EOI notice.
- The BEAM Committee has selected 20 consortia ('Selected Consortia') for the experimental flights.
- Ministry of Civil Aviation has granted conditional exemption from Unmanned Aircraft System (UAS) Rules, 2021 to 20 entities to conduct Beyond Visual Line of Sight (BVLOS) experimental flights of drones.
- These exemptions are subject to complete adherence to the requirements stated in the said EOI notice and the directions/ exemptions issued (or to be issued in future) by the BEAM Committee.
- This conditional exemption shall be valid for period of one year, or until further orders, whichever is earlier.

#### **Pradhan Mantri Kisan Samman Nidhi**

- The Prime Minister of India released the eighth instalment of payouts under the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN).

- PM-KISAN is a 100% centrally funded income support scheme that was announced in the Interim Budget for 2019-20, but it was implemented from December 1, 2018.
- Every family owning not more than 2 hectares of cultivable land is entitled to receive Rs 6,000 per year via Direct Benefit Transfer (DBT) to their bank accounts in three equal instalments i.e Rs 2,000 each time.
- **Requirements** - PM-KISAN spelt out that furnishing a proper land record and bank account details is necessary to become a beneficiary.
- The beneficiaries need to have Aadhaar identification. An alternate list of identification documents has also been provided, as options.
- **Working** - State governments are required to send correct and verified data of farmers, which State Nodal Officers (SNOs) authenticate and upload to the scheme portal in batches.
- Based on the verified data, SNOs sign the Request For Transfer (RFT), with the total number of beneficiaries.
- The Public Finance Management System (PFMS) then issues a Fund Transfer Order (FTO).
- Based on this, the Department of Agriculture, Cooperation & Farmers' Welfare in the Ministry of Agriculture & Farmers' Welfare issues the transaction order for the mentioned amount.
- The money goes to the State Nodal Account maintained at a sponsor bank, and the PM-Kisan amount will be credited into the accounts of eligible farmers.

### **Pradhan Mantri Bhartiya Janaushadhi Pariyojana**

- Pradhan Mantri Bhartiya Janaushadhi Kendras (PMBJKs), Bureau of Pharma PSUs of India (BPPI) and other stakeholders have come together to fight against the second wave of Covid 19 pandemic.
- Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) or Jan Aushadi Campaign was launched in 2008 by the Department of Pharmaceuticals, under the Ministry of Chemicals & Fertilizers.
- Implementation agency of the scheme is the Bureau of Pharma PSUs of India (BPPI) under the Ministry of Chemicals & Fertilizers.
- Exclusive outlets called PMBJKs were opened to make quality generic medicines available at affordable prices for all, particularly the poor and the disadvantaged.
- It will create awareness about generic medicines through education and publicity so that quality is not synonymous with an only high price.
- The scheme's product basket has been expanded to cover around 650 medicines and around 150 surgicals and consumables.
- A medicine under PMBJP is priced on the principle of a maximum of 50% of the average price of the top three branded medicines.
- So, the price of Jan Aushadhi Medicines is cheaper at least by 50% and in some cases, by 80% to 90% of the market price of branded medicines.

### **Kharif Strategy 2021**

- Kharif Strategy 2021 is a multi-pronged strategy adopted by the Agriculture Ministry to achieve self-sufficiency in oilseeds production.
- Under the strategy, the Government of India has approved an ambitious plan for the **free distribution of high yielding varieties (HYV) of seeds** to the farmers for the Kharif season 2021 in the form of mini-kits.
- Both area and productivity enhancement has been formulated for **soybean and groundnut** with a focus on HYV seeds to be provided free of cost under the National Mission (Oil Seeds and Oil Palm) Mission
- This strategy will bring an additional 6.37 lakh hectare area under oilseeds and is likely to produce 120.26 lakh quintals of oilseeds.
- To this end a multi-pronged strategy is being adopted which includes, among others, the following:
  1. Increasing seed replacement ratio with focus on varietal replacement
  2. Area expansion through diversification of low yielding food grains.

3. Targeting rice fallow areas and high potential districts
4. Supporting cluster demonstrations for the adoption of good agricultural practices
5. Creation of 36 oilseed hubs with a focus on regional approach for larger availability of quality seeds
6. Post-harvest management at farm and village level
7. Formation of Farmer Producer Organisations

### **National Food Security Mission on Oilseeds and Oil Palm**

- During the 12th Five Year Plan, a new National Mission on Oilseeds and Oil Palm (NMOOP) was launched.
- Under NMOOP, **Mini Mission - II** (MM - II) was dedicated to oil palm area expansion and productivity increases.
- MM - II was implemented in **12 States** - Andhra Pradesh, Telangana, Chhattisgarh, Tamil Nadu, Kerala, Gujarat, Karnataka, Odisha, Mizoram, Nagaland, Assam and Arunachal Pradesh w.e.f. 01.04.2014.
- Through NMOOP, the Government aims to augment the availability of edible oils and reduce the import of edible oils by increasing the production and productivity of oilseeds and oil palm.
- It also aims to improve the area under plantation of Tree Borne Oilseeds (TBOs) - Olive, Mahua, Kokum, Wild Apricot, Neem, Jojoba, Karanja, Simaroba, Tung, Cheura and Jatropa.

### **National Institute of Social Defence**

- The Social Justice Ministry would give transgender persons a one-time financial assistance of ₹1,500 through direct benefit transfer, as their livelihoods have been affected due to the pandemic.
- For the immediate subsistence assistance to trans-persons, the beneficiaries can register with the National Institute of Social Defence.
- **Origin of NISD** - National Institute of Social Defence (NISD) is an Autonomous Body registered under Societies Act XXI of 1860 with the Government of National Capital Territory (NCT), Delhi.
- NISD was set up originally as the Central Bureau of Correctional Services in 1961, under the Ministry of Home Affairs.
- In 1964, the Bureau was transferred to the then Department of Social Security. Since 1975, the Institute was a subordinate office under the Ministry of Social Justice and Empowerment.
- **Mandate** - To provide inputs for the social defence programmes of the Government of India through training, research & documentation.
- It is a central advisory body for the Social Justice Ministry. It is the nodal training and research institute in the field of social defence.
- It currently focuses on human resource development in the areas of drug abuse prevention, welfare of senior citizens, beggary prevention, transgender and other social defence issues.

### **Target Olympic Podium Scheme**

- Tennis player Ankita Raina has been added to the Target Olympic Podium Scheme (TOPS or TOP Scheme).
- The TOPS is a flagship program of the Ministry of Youth Affairs and Sports (MYAS) that provides assistance to India's top athletes.
- Under the Scheme, the Department of Sports shall identify athletes who are potential medal winners in 2020 / 2024 Olympics.
- The scheme looks to add a premium to the preparations of these athletes so that they can win Olympic medals.
- It also funds a Developmental Group of Athletes who are medal prospects for the Olympic Games in Paris (2024) and Los Angeles Games (2028).
- **History** - In order to realize India's Olympic medal dream, at the 2016 and 2020 Olympics, the MYAS established the TOP Scheme in 2014.

- **TOPS Elite Athletes' Identification Committee** was constituted to identify the elite athletes who could achieve the Olympic podium.
- The MYAS appoints the TOPS members with emphasis on ensuring representation from 'High-Priority' sports (Archery, Badminton, Boxing Hockey, Shooting and Wrestling).
- **Mission Olympic Cell (MOC)** is a dedicated body created to assist the athletes who are selected under the TOP Scheme.
- The Chairman of MOC is the Director General, Sports Authority of India.
- The idea of the MOC is to debate, discuss and decide the processes and methods so that the athlete receives best assistance.
- The MOC also focuses on selection, exclusion and retention of athletes, coaches, training institutes that can receive TOPS assistance.

### ***National Programme for Organic Production***

- Agricultural and Processed Food Products Export Development Authority (APEDA) has sourced finger millet and barnyard millet from farmers in Himalayas (Uttarakhand) for exports to Denmark.
- These millets were exported to Denmark after meeting the organic certification standards of the European Union (EU).
- At present, organic products are exported provided they are produced, processed, packed and labelled as per the requirements of the National Programme for Organic Production (NPOP).
- The NPOP or the Participatory Guarantee System for India (PGS-India) is a top-down mechanism run by the APEDA under the Ministry of Commerce for certifying general exports.
- The NPOP came into inception in 2001 under the Foreign Trade (Development and Regulations) Act, 1992.
- **Significance** - The NPOP certification recognized by the EU and Switzerland enables India to export unprocessed plant products to these countries without the requirement of additional certification.
- It also facilitates export of Indian organic products to the United Kingdom even in the post Brexit phase.
- It has also been recognized by the Food Safety Standard Authority of India (FSSAI) for trade of organic products in the domestic market.
- Organic products covered under the bilateral agreement with NPOP need not to be recertified for import in India.

#### **Agricultural and Processed Food Products Export Development Authority**

- APEDA was established under the APEDA Act, 1985.
- It functions under the control of Ministry of Commerce and Industry.
- It has been mandated with the responsibility of export promotion and development of the scheduled products viz. fruits, vegetables and their products, meat products and poultry products, dairy products, etc.,
- It has been entrusted with the responsibility to monitor import of sugar.

### ***Increased Subsidy on DAP***

- The government has announced a 137% increase in the subsidy on di-ammonium phosphate (DAP) - A Nutrient-Based Subsidy Scheme.
- DAP is the second most commonly used fertiliser in India, next only to urea. DAP contains 46% phosphorus (P) and 18% nitrogen (N).
- This is similar to urea and muriate of potash (MOP), which again have very high N and potassium (K) content of 46% and 60%, respectively.
- Farmers normally apply DAP just before or at the time of sowing, as it is high in phosphorus that stimulates root establishment and development.



## 17. BILATERAL RELATIONS

### *Operation Samudra Setu II*

- Under this Indian Navy operation, seven Indian Naval ships (INS) have been deployed for shipment of Liquid Medical Oxygen (LMO) -filled cryogenic containers from various countries to India.
- [Seven INS viz. Kolkata, Kochi, Talwar, Tabar, Trikand, Jalashwa and Airavat]
- In 2020, [Operation Samudra Setu](#) was launched by the Navy and around 4000 Indian citizens stranded in neighbouring countries, amidst COVID 19 outbreak, were successfully repatriated back to India.

### *Vande Bharat Mission*

- The Vande Bharat Mission (VBM) that started repatriating Indians stranded abroad due to Covid-19 and the resultant lockdowns has turned out to be one of the largest evacuations of civilians by a country.
- It has surpassed the large-scale airlift of 1,10,000 people in 1990 at the onset of the Gulf War.
- National carrier Air India, which carried out the bulk of air transfers under the mission, was supported by its budget carrier Air India Express.
- Air India Express (AIE) lifted agricultural products, mainly fruits and vegetables, to West Asian countries, Singapore and Kuala Lumpur.
- Under the mission, the entire cost of travel will be borne by the passengers. The mission gave priority to Indian citizens with “compelling reasons to return.
- “Transport bubbles”, temporary arrangements between two countries aimed at restarting commercial passenger services when regular international flights are suspended due to the pandemic, are in place.
- Reciprocal in nature, airlines from both countries enjoy similar benefits. Such arrangements had been established with many countries.

### *Lithuania quits China's 17+1*

- Lithuania quitted China's 17+1 Cooperation between forum China and Central and Eastern European Countries (China-CEEC).
- It has also urged fellow EU members to pursue a much more effective 27+1 approach and communication with China.
- China-CEEC was founded in 2012 in Warsaw. Earlier, it was known as 17+1, but after Lithuania quits it in May 2021 it is known as 16+1.
- **Objectives** - China-CEEC is an initiative by the Chinese Ministry of Foreign Affairs to promote business and investment relations between China and 16 CEEC countries.
- It also focuses on infrastructure projects such as bridges, motorways, railway lines and modernisation of ports in the member states.
- It is seen as an extension of China's Belt and Road initiative (BRI).
- **Members of the initiative** - 12 EU member states and 5 Balkan states.
- They are Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia and Slovenia.

### *UAE's Golden Visa*

- Actor Sanjay Dutt received his golden visa from the UAE government.
- The Golden Visa system for long-term residence visas (5 and 10 years) was implemented in 2019 by the United Arab Emirates (UAE).
- It enables the foreigners to live, work and study in the UAE without the need of a national sponsor and with 100% ownership of their business.



- **Benefit** - The main benefit will be security as through the issuance of the Golden Visa; the UAE government provides an extra reason to feel secure for those looking to make the UAE their home.
- Interested individuals can apply for the Golden Visa through,
  1. The website of the Federal Authority for Identity and Citizenship, ICA (the eChannel for residency and citizenship) - Online only, or
  2. The General Directorate of Residency and Foreigners Affairs (GDRFA) which works under the ministry - Offers both online and offline channels.
- **Eligibility** - The Golden Visa is offered to investors, entrepreneurs, individuals with outstanding talents and remarkable students.
- **For 10-year visa** - Investors having no less than AED 10 million worth of public investment (as an investment fund or a company) can apply.
- However, at least 60% of the total investment must not be in the form of real estate and the invested amount must not be loaned, or in case of assets, investors must assume full ownership.
- The investor must be able to retain the investment for a minimum of 3 years as well. This 10-year long visa may be extended to include business partners, if each partner contributes AED 10 million.
- The long-term visa can also include the holder's spouse and children, as well as one executive director and one advisor.
- Besides entrepreneurs, individuals with specialised talent may be granted a 10-year visa following accreditations given by their respective departments and fields.
- Their visa will also be extended to their spouses and children.
- **For 5-year visa** - The norms for investors for the 5-year visa are largely similar as that of the 10-year visa, but they must invest AED 5 million.
- Exceptional High school students who rank top in the country (a minimum grade of 95%) and students from certain universities with a GPA of 3.75 or higher upon graduation are eligible for a 5-year visa.
- Foreigners who are looking to set up their business in the UAE may also apply for 5-year visa through the Golden Business Visa scheme.

## 18. ECONOMY

### ***Foreign Portfolio Investors & Domestic Institutional Investors***

- For the first time in seven months, the Domestic Institutional Investors (DIIs) have overtaken the Foreign Portfolio Investors (FPIs) in net investment in Indian equities.
- If global liquidity and inflow of funds by FPIs led to the domestic market rally that began in October 2020, the current strength in the market is being provided by DIIs.

No.	Foreign Portfolio Investors (FPIs)	Domestic Institutional Investors (DIIs)
1.	FPIs are foreign investors who invest in Indian securities, not more than 10% and satisfy the criteria laid down by the regulations.	DIIs are those institutional investors who invest in securities and other financial assets of the country they are currently residing in.
2.	They are the big foreign companies such as investment banks, mutual funds etc, who invest in the Indian markets.	There are four sets of DIIs - Indian Mutual Funds, Indian Insurance Companies, Local Pension Funds and Banking & Financial Institutions.
3.	SEBI introduced the concept of FPIs, regulated by SEBI (Foreign Portfolio	They are also regulated by the government, but lesser than the FPIs.

	<p>Investors) Regulations, 2011.</p> <p>Under this, the FPI Includes the FII, QFI, and sub-accounts under one category.</p>	
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### **Non-Fungible Tokens**

- Non-Fungible Tokens (NFTs) are **transaction records captured on the blockchain** - the web version of a physical ledger.
- NFTs allow people to trade the ownership of digital entities such as memes, media, tweets, arts, articles in 'token' form.
- As NFTs are supported by blockchain, these transaction records are permanent, verified multiple times and cannot be erased or changed.
- Each non-fungible token is uniquely identifiable. So, no two digital entities can have the same token.
- **Rights** - An NFT is a certificate of authenticity, or a digital autograph that can be attached to digital property. Buying an NFT doesn't convey copyright or usage rights unless there is an explicit licence mentioning it.
- **Earning** - NFTs don't offer any cash flow and are not real assets. The only way one can make money is by luring others into buying your NFT.
- To sell an NFT, a new NFT needs to be created by the seller. Creating an NFT will require spending real money which will go into the crypto economy.
- **Importance** - The Covid pandemic has further devastated the poorly-paid lives of innumerable artists, musicians and creators.
- The digital world offers a creative outlet, but in it, any creation can be easily duplicated. With NFTs, any creation can be tokenised to create a digital ownership certificate, helping creators get good price for their art.

### **Fractional Ownership**

- The term ownership usually signifies exclusive right over an asset.
- Fractional ownership allows investors to own a bit of a pricey asset. Unrelated parties can share passive ownership of a high-value asset, thus democratising ownership.
- This can be a jet, commercial real estate, a luxury villa or warehouse.
- Both income and expenses related to this asset are then shared by investors in proportion to their investment.
- Nowadays, physical assets such as vehicles, equipment and furniture leased to corporates are also tapping into the fractional ownership craze.
- In such assets, the minimum investment can be as low as ₹20,000.
- In property, fractional ownership legally divides ownership rights across many owners. Pre-leased commercial real estate investments can be as low as ₹5 lakh.
- Typically, fractional ownership investments in commercial real estate are done through a Specific Purpose Vehicle (SPV) in which funds are raised to own and manage the property.
- As an investor, you will own shares of the SPV holding the property.

### **Bitcoin Mining Council**

- The Bitcoin Mining Council will consist of miners who commit to publishing current and planned renewable usage.
- The move comes weeks after Elon Musk suspended Tesla vehicle purchases using bitcoin, over environmental concerns.



- He said that Tesla will not sell any bitcoin and intends to use bitcoin for transactions as soon as mining moves to more sustainable energy.
- Musk convinced many bitcoin miners in North America to form an organisation to promote cryptocurrency's energy usage transparency and accelerate sustainable mining worldwide.
- The Bitcoin Mining Council, formed by cryptocurrency companies like ArgoBlockchain, Galaxy Digital, Core Scientific and Hive, will,
  1. Standardise energy reporting,
  2. Pursue industry ESG goals and
  3. Educate and grow the marketplace.
- The Musk-led council will respect bitcoin's fungibility and won't change the nature of the crypto asset, but will simply promote greener practices.

### **Confidentiality Ring**

- Deadline on the review of the Competition Commission of India's (CCI's) proposal to set up a Confidentiality Ring along with a draft of the revised Regulation 35 of CCI (General) Regulations, 2009 was extended.
- **Confidentiality regime** - Under the Competition Act 2002, there is a restriction on disclosure of certain information during a proceeding in order to maintain sanctity of the information relating to any enterprise.
- The existing Confidentiality regime provides a detailed mechanism to deal with the confidentiality request made by the parties and provides the procedure and the parameters for such claims.
- The current practice of filing of pleadings in two versions - confidential and non-confidential - would continue but on "self-certified basis".
- The existing regime which enables the informant to seek confidentiality over its identity on merely making a request in writing is also proposed to be done away with.
- **Confidentiality Ring** - Among others, the CCI has also proposed setting up of a "confidentiality ring".
- It will comprise authorised representatives (internal and external) of the parties who would be able to review the entire case records in an unredacted form, subject to appropriate undertakings against disclosure.

### **Hike in Auto Fuel Prices**

- State-owned Oil marketing companies (OMCs) hiked the price of petrol by 15 paise per litre and that of diesel by 18 paise per litre in the first hike in auto fuel prices since February 27, 2021.
- Currently, petrol and diesel prices are at near record highs due to a combination of the increase in the price of crude oil and elevated taxes on petrol and diesel.
- In 2020, the central government had raised taxes on petrol and diesel to boost revenues as economic activity fell sharply due to the pandemic.
- **Significance** - OMCs would have to raise prices over the current crude oil price levels to boost marketing margins as refining margins were low due to the slow offtake of petroleum products due to Covid restrictions.
- OMCs could hike the price of petrol and diesel to recoup lost revenue during the price freeze.
- They were relying on inventory gains to boost their bottom line but as crude oil prices are not expected to rise much further, they will have to boost marketing margins as even refining margins are currently weak.
- **[Inventory gains** are gains in the value of crude oil as well as petroleum products held by an OMC.]

### **Network for Greening the Financial System**

- The Reserve Bank of India (RBI) has joined the Central Banks and Supervisors Network for Greening the Financial System (NGFS).
- It expects to benefit from the membership of NGFS by learning from and contributing to global efforts on Green Finance.



- The NGFS is a group of Central banks and supervisors willing to share the best practices and contribute to the development of the environment and climate risk management in the financial sector.
- It aims to mobilise mainstream finance to support the transition towards a sustainable economy.
- It aims to analyse the consequences of climate change for the financial system and to redirect global financial flows in order to enable low-carbon economic growth.
- The NGFS was launched at the Paris One Planet Summit in 2017.

### **Green Finance**

- Green Finance has assumed significance in the context of climate change. It refers to financial support for green growth.
- It is a strategic approach to incorporate the financial sector in the transformation process towards low-carbon and resource-efficient economies, and in the context of adaptation to climate change.

### **Post Devolution Revenue Deficit**

- The Department of Expenditure, Ministry of Finance released the second monthly instalment of Post Devolution Revenue Deficit (PDRD) Grant of ₹9,871 crore for the financial year 2021-22 to 17 States.
- The Centre provides the Post Devolution Revenue Deficit Grant to the States under **Article 275** of the Constitution.
- PDRD is charged on the **Consolidated Fund of India** in each year as grants in aid of the revenues of such States as Parliament may determine to be in need of assistance.
- As per the recommendations of the **Finance Commission**, the grants are released in **12 monthly instalments** to meet the gap in revenue accounts of the States post-devolution.
- The Finance Commission provides PDRD grants as a mechanism for compensation of any loss incurred by states.
- The 15th Finance Commission has recommended PDRD grants over the five-year period ending FY26 to the States based on the gap between the assessment of revenue and expenditure of the State.

### **Finance Commission Grants**

- The Finance Commission Grants, in the Union Budget, provides funds to local bodies, state disaster relief funds and compensates any revenue loss to states after devolution of taxes. The grants include,
- **Grants for rural local bodies**- Nearly half of the Finance Commission Grants in Union Budget goes to village local bodies.
- **Grants for urban local bodies** - Urban local bodies like municipal councils receive the largest chunk of Finance Commission Grants after Rural Local Bodies and Post Devolution Deficit Grants to states.
- **Assistance to SDRF** - Based on the recommendations of the Finance Commission, the central government provides funds to State Disaster Relief Funds.
- **Post devolution revenue deficit grants** - This forms the second largest chunk of Finance Commission transfers after the assistance to local rural bodies.

### **Retrospective Tax Demand**

- Cairn Energy argued that India's retrospective taxation was in breach of the India-UK Bilateral Investment Treaty which obligated India to treat investment from UK in a "fair and equitable manner".
- So, Cairn is suing Air India in New York to seize its assets to enforce the \$1.2 billion arbitration award it won against the Indian government in a retrospective tax dispute.
- **Vodafone case** - In 2012, the Supreme Court ruled that a series of transactions involving Vodafone did not attract capital gains.
- It said that these transactions did not amount to transfer of a capital asset within the meaning of Section 2(14) of the Income Tax Act.

- The government amended the Income Tax Act retrospectively in 2012, due to the Supreme Court ruling in Vodafone case.
- **The 2012 amendment** - “An asset or a capital asset being any share or interest in a company or entity registered or incorporated outside India shall always be deemed to have been situated in India, if the share or interest derives its value substantially from the assets located in India”.

### Retrospective Taxation

- Retrospective Taxation allows a country to pass a rule on taxing certain products, items or services and deals and charge companies from a time behind the date on which the law is passed.
- This route is used by the countries to correct any anomalies in their taxation policies that have, in the past, allowed companies to take advantage of such loopholes.
- Retrospective amendment to taxation laws ends up hurting companies that had knowingly or unknowingly interpreted the tax rules differently.
- Apart from India, countries like the US, the UK, the Netherlands, Canada, Belgium, Australia, etc have retrospectively taxed companies.

### Sensex Breached 50,000

- The constant decline in Covid cases recently has lifted the market sentiment and the benchmark indices BSE's Sensex and NSE's Nifty above the 50,000 and 15,000 marks respectively.
- **Reasons for markets rising** - The resistance of union government to announce a nationwide lockdown provided a big relief to the markets in March and April 2021.
- Opening up of vaccination for all adults and the decline in Covid cases has boosted hopes of a less hindered industrial activity going forward.
- But the second Covid wave has impacted the rural India and also smaller companies in the unorganised sector much more than it did in its first phase last year.
- Large listed companies across sectors have benefitted at the cost of smaller ones and are seeing an increase in market share.
- That is leading to a rise in their share prices and market valuations thereby resulting into growth in Sensex and other leading indices.

### Model Insurance Villages

- The Insurance Regulatory and Development Authority of India (IRDAI) has come out with the concept of Model Insurance Villages (MIV).
- The idea behind the MIV concept is to offer comprehensive insurance protection to all the major insurable risks that villagers are exposed to and make available covers at affordable or subsidised cost.
- Such MIVs are expected to tackle losses due to natural calamities like floods and earthquakes. There's no catastrophe insurance in India now.
- The concept would be implemented in a minimum of 500 villages in different districts of the country in the first year and increased to 1,000 villages in the subsequent 2 years. It will be implemented for 3 to 5 years.
- Every general insurance company and reinsurance company accepting general insurance business and having office in India needs to be involved for piloting the concept.
- In order to make the premium affordable, financial support needs to be explored through NABARD, other institutions, CSR funds, support from government and re-insurance companies.
- This is to ensure that families and their property, crops get cover and the entire village community participate in the initiative.
- Nutrient Based Subsidy (NBS) Scheme for Fertilizers was initiated in 2010. It is implemented by the Department of Fertilizers, Ministry of Chemicals & Fertilizers.
- Under the scheme, a fixed amount of subsidy is provided on each grade of subsidized Phosphatic and Potassic (P&K) fertilizers, except for Urea, based on the nutrient content (N, P, K & S) present per kg.



- Additional subsidy is also given to the fertilizers which are fortified with secondary and micronutrients such as molybdenum (Mo) and zinc.
- The subsidized rates of the P&K fertilizers are determined by the Government annually based on the international and domestic prices of P&K fertilizers, exchange rate, inventory level in India etc.
- NBS policy intends to increase the consumption of P&K fertilizers so that optimum balance (N:P:K= 4:2:1 ) of NPK fertilization is achieved.
- In India, urea is the only controlled fertilizer and is sold at a statutory notified uniform sale price.

### ***National Financial Reporting Authority Database***

- The National Financial Reporting Authority (NFRA) is a regulatory body set up under Section 132 of the Companies Act, 2013.
- NFRA oversees compliance by companies that can be described as Public Interest Entities (PIEs) with Accounting and Auditing Standards.
- PIEs include all listed companies, and large unlisted companies.
- To discharge this mandate, NFRA is in the process of creating a verified and accurate database of companies and auditors that come under the regulatory ambit of NFRA.
- In this regard the NFRA has been engaging with the Corporate Data Management (CDM) division of Ministry of Corporate Affairs (MCA) and three recognised stock exchanges in India.
- NFRA, formed in 2018, is responsible for transparency and reliability of financial statements and information presented by listed companies and large unlisted companies in India.
- To know more about National Financial Reporting Authority, [click here](#).

### ***Withdrawal of Rate Cuts on Small Savings Schemes***

- Hours after notifying significant cuts in small savings instruments' returns for this quarter, the government has backtracked on these cuts.
- The Small Saving Schemes (SSSs) are major source of household savings in India.
- They have mobilized money from households and channelized them to government so that the centre and states can finance a part of their expenditure.
- The Central Government operates SSSs through the nationwide network of Post Offices, branches of the Public-Sector Banks and select private sector banks and more than 5 lakh small savings agents.
- **Types** - The Small Savings instrument basket comprises 12 instruments. They can be grouped under three,
  1. **Post office Deposits** - Post Office Savings Account, Post Office Time Deposits (1,2,3 and 5 years), Post Office Recurring Deposits, Post Office Monthly Account,
  2. **Savings Certificates** - National Savings Certificate (VIII Issue) and Kisan Vikas Patra,
  3. **Social Security Schemes** - Public Provident Fund, Senior Citizens Savings Scheme, and Sukanya Samridhi Account.

### ***National Small Savings Fund***

- National Small Savings Fund (NSSF) was established in 1999 within the **Public Account of India** for crediting the money collected from all small savings schemes (SSSs) to the NSSF.
- Also, withdrawals under SSSs by the depositors are made out of NSSF.
- **Administration of NSSF** - The NSSF is administered by the Ministry of Finance under National Small Savings Fund Rules, 2001, which is derived from Article 283(1) of the Constitution.
- Objective for the formation of a dedicated fund for small savings is to de-link small savings transactions from the Consolidated Fund of India.
- Since NSSF operates in the Public Account, its transactions do not impact the fiscal deficit of the Centre directly.



- As an instrument in the public account, the balances under NSSF are direct liabilities and constitute a part of the liabilities of the Centre.
- **Use of proceeds from NSSF** - Pattern of utilization of the NSSF among the centre and states is decided from time to time by the Government of India.
- As per the recommendations of the 14<sup>th</sup> Finance Commission, the government has excluded states (except four states) from the use of Small Saving Scheme money.
- This is because the SSSs have slightly higher interest rate than the loans procured by states. Now, the NSSF will be used by the centre.

### **Village Rice**

- Two consignments of patented 'village rice' sourced from Kumbakonam, Thanjavur district, Tamil Nadu was exported to Ghana & Yemen.
- 'Village rice' sourced directly from farmers of Thanjavur (Rice Bowl of Tamil Nadu) is enriched with **protein, fibre, and minerals**.
- Previously, the first consignment of '[red rice](#)' from Assam was exported to the USA.
- The Agricultural and Processed Food Products Export Development Authority ([APEDA](#)) is working with various stakeholders across the globe to harness India's non-basmati rice exports potential.
- The government had set up the Rice Export Promotion Forum (REPF), under the aegis of the APEDA to provide stimulus to the rice exports.

### **Rice Export Promotion Forum**

- Rice Export Promotion Forum (REPF) was set up under the aegis of the Agricultural and Processed Foods Export Promotion Development Authority (APEDA).
- REPF was been set up by the Government of India to provide stimulus to the rice exports.
- It has representations from rice industry, exporters, officials from APEDA, Ministry of Commerce and directors of agriculture from major rice producing states.
- [Major Rice producing states - West Bengal, Uttar Pradesh, Punjab, Haryana, Telangana, Andhra Pradesh, Assam, Chhattisgarh and Odisha.]
- It will monitor, identify and anticipate the developments related to production and exports and put forward various policy measures.

### **State Disaster Response Fund**

- The Centre has released the first instalment of the State Disaster Response Fund (SDRF) for 2021-22 to all the States, in the wake of the second wave of COVID-19.
- Normally, the annual exercise of release of the first instalment is usually done in June, as per the recommendations of the Finance Commission.
- As a special dispensation, the Department of Expenditure, Ministry of Finance, at the recommendation of the Home Ministry, has released in advance the first instalment of the Central share of the SDRF.
- Since Delhi is a Union Territory, the fund is released by the MHA and is included in the Union Budget.
- **State Disaster Response Fund (SDRF)** has been constituted under Section 48 (1) (a) of the Disaster Management Act, 2005, based on the recommendations of the 13<sup>th</sup> Finance Commission.
- It is the primary fund available with the State governments as part of their response to the notified disasters to meet expenditure on providing immediate relief to victims.
- The Centre contributes 75% of the allocation for general category States and Union Territories and 90% for special category States (northeastern, Sikkim, Uttarakhand, Himachal Pradesh, Jammu and Kashmir).
- The annual Central contribution is released in two equal installments as per the recommendation of the Finance Commission.

- The allocation to each State depends on its population and utilisation of such funds in the previous financial year.
- The SDRF is audited by the Comptroller and Auditor General of India (CAG) every year.
- To know more about the State Disaster Response Fund, [click here](#).

### ***Sovereign Gold Bond Scheme***

- The Government of India, in consultation with the Reserve Bank of India (RBI), has decided to issue Sovereign Gold Bonds in six tranches from May 2021 to September 2021.
- The Sovereign Gold Bond Scheme was launched in 2015. Its objective is to shift a part of the domestic savings (used for the purchase of gold) into financial savings in order to reduce the demand for physical gold.
- These gold-denominated government securities will be issued by the RBI on behalf of the Government through,
  1. Scheduled Commercial banks (except Small Finance Banks and Payment Banks),
  2. Stock Holding Corporation of India Limited (SHCIL),
  3. Designated post offices, and
  4. Recognised stock exchanges viz., National Stock Exchange of India Limited and Bombay Stock Exchange Limited.
- The Bonds will be issued as Government of India Stock under GS Act, 2006. The investors will be issued a Holding Certificate for the same.
- **Eligibility** - The Bonds will be restricted for sale to resident individuals, HUFs, Trusts, Universities and Charitable Institutions.
- **Tenor** - The tenor of the Bond will be for a period of 8 years with exit option after 5th year to be exercised on the next interest payment dates.
- **Size** - Minimum permissible investment will be 1 g of gold. Maximum limit shall be 4Kg (individual), 4Kg (HUF) and 20Kg (trusts and similar entities) per fiscal notified by the Government from time to time.
- Price of Bond and the redemption price will be fixed in Indian Rupees on the basis of simple average of closing price of gold of 999 purity for previous 3 working days published by IBSA Ltd.
- The investors will be compensated at a fixed rate of 2.50% per annum payable semi-annually on the nominal value.
- **Taxation** - The interest on Gold Bonds shall be taxable as per the provision of Income Tax Act, 1961.
- **Uses** - The Bond is tax efficient as no capital gains is charged in case of redemption on maturity.
- Bonds can be used as collateral for loans. Loan-to-value ratio is equal to ordinary gold loan mandated by the RBI from time to time.
- Bonds are eligible for conversion into demat form. They will be tradable on stock exchanges within a fortnight of the issuance by the RBI.

### ***Vaccine GST Exemption***

- Several states are demanding for removing taxation on Covid-related medicines and supplies, including a GST exemption on vaccines.
- Finance Minister responded that exemptions on domestic supplies and commercial imports would make them costlier for consumers.
- A 5% GST is levied on domestic supplies and commercial imports of vaccines; Covid drugs and oxygen concentrators attract 12%.
- This tax rate ensures that the manufacturer is able to utilise ITC and in case of overflow of Input Tax Credit (ITC), claim refund. This ensures that the taxes are not passed on to the end consumer by price rise.
- Categorising domestic supplies as zero-rated might be a better option than granting a full exemption, as it will pave the way for availing ITC.





- **IGST Sharing** - If Rs 100 IGST is collected on an item, the states and Centre get 50% each as SGST and CGST respectively.
- Also, 41% of CGST revenue is transferred to states as devolution. So out of a collection of Rs 100, as much as Rs 70.50 is the share of the states.
- This is the case with the GST revenues collected from sale of vaccines.
- These items are already exempt from Customs duty and health cess.

### **Zero-rated Supplies**

- Under Section 2(47) of the CGST Act, 2017, a supply is exempt when it attracts a nil rate or is specifically exempted, but that is not equivalent to being zero-rated.
- Inputs and input services that would have gone into the making of the good or provision of service would have already faced a tax levy, and only the final product is exempted.
- GST-related laws do not allow availing of credit on inputs and input services used for supply of the exempted output. This becomes a cost for the supplier, and is usually passed on to the consumer.
- Zero-rating makes the entire value chain of the supply exempt from tax.
- It exempts the output from tax and there is no bar on availing credit of taxes paid on the input side for providing the output supply.
- As per GST-related laws, zero-rating is applicable for exports and exports and supplies to Special Economic Zones (SEZs). Addition of any other category would require a legal amendment.

### ***'Contradiction' in India's push for IPR Waiver on vaccines***

- India and South Africa had initiated a proposal for the temporary waiver of the World Trade Organisation's (WTO's) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).
- This proposal aims to facilitate fair, affordable and universal access of COVID vaccines and medicines, especially for developing countries.
- To know more about the waiver proposal, [click here](#).
- But, there is a "contradiction" in India's global push as the government has said in the Supreme Court that bringing COVID-19 vaccines under a statutory regime will be "counter-productive" at this stage.
- The Centre has said, "Any exercise of statutory powers either under the Patents Act, 1970 read with TRIPS Agreement and Doha Declaration or in any other way can only prove to be counter-productive at this stage".
- The government assures that it is very actively engaging itself with global organisations at a diplomatic level to find out a solution in the best possible interest of India.

### **Patents Act, 1970**

- The Patents Act, 1970 is the legislation that till date governs patents in India. It first came into force in 1972.
- This act is implemented by the Office of the Controller General of Patents, Designs and Trade Marks (CGPDTM).
- The Controller General supervises the Act's administration and also offers advice to the government on related matters.
- The Patents Act has been amended in 1999, 2002, 2005, 2006 to make the Act TRIPS compliant.
- The major amendment in the Patent Act was in 2005, when product patents were extended to all fields of technology like food, drugs, chemicals and microorganisms.

### ***Tax on Oxygen Concentrators as Gifts***

- The government has waived Integrated Goods and Services Tax (IGST) and customs duty on oxygen concentrators that are gifted from overseas or imported.
- But the Foreign Contribution (Regulation) Act (FCRA) is triggered in the case of non-profit institutions.



- Only non-profit entities with a valid FCRA registration can legally receive charitable funds and articles from donors outside India.
- For any non-profit entities without an FCRA licence or for profit companies receiving these equipments as gifts, there could be questions later on under FCRA.
- Even certain individuals who import oxygen concentrators could face taxes. There is a need for clarification.

### ***Record High Rice and Wheat Exports***

- In 2020-21, India exported close to 20 million tonnes (mt) (Rs 69,331.45 crore) of grains and also distributed a record 92 mt of rice and wheat.
- A 92 was distributed from the central pool included,
  - a) 60.32 mt under the National Food Security Act and other welfare schemes,
  - b) 31.52 mt under the Pradhan Mantri Garib Kalyan Anna Yojana, Atmanirbhar Bharat Package (for returning migrant labourers) and assorted programmes launched in the wake of Covid-19 lockdown.
- The total grain channelled through the public distribution system (PDS) in 2020-21 was nearly 50% higher than in normal years.
- These twin records are a remarkable story of surplus production and stocks in public warehouses.
- Even after the unprecedented offtake, rice and wheat stocks in the central pool, at 77.23 mt on April 1, 2021, stood above the required minimum buffer of 21.04 mt.
- The competitiveness of Indian rice and wheat has been enabled by the following factors. They are,
  - a) Indian grains being available at sub-MSP,
  - b) Increase in international prices has made exports from India a viable proposition.
- The UN Food and Agricultural Organization's global cereal price index (2014-2016=100) is currently ruling at its highest since 2014.

### **FAO Food Price Index**

- The FAO Monthly Cereal Price Index is part of the UN FAO Food Price Index (FFPI).
- The FFPI is a monthly measure of change in international prices of a basket of five major food commodities - Cereals, Sugar, Dairy, Vegetable oil and Meat products.
- It consists of the average of five commodity group price indices weighted by the average export shares of each of the groups over 2014-2016.
- **Sub-indices** - FAO Cereal Price Index, FAO Vegetable Oil Price Index, FAO Dairy Price Index, FAO Meat Price Index, FAO Sugar Price Index.

## **19. ENVIRONMENT**

### ***Task Force on National Mission on Sustaining Himalayan Ecosystem***

- A team of Indian Council for Agricultural Research (ICAR) scientists has been awarded for Excellence in Dissemination of agricultural practices and technologies from a National Agriculture Magazine.
- Their work has been recognised for improving livelihood and subsistence production systems in remote areas like Leh.
- The group was supported by Task Force on Himalayan Agriculture under National Mission on Sustaining Himalayan Ecosystem (NMSHE).
- The Task Force, as part of Climate Change program of Department of Science and Technology (DST), worked on the six components.
- [Six components - Database development, monitoring, vulnerability assessment, adaptive research, pilot studies, and organized capacity building/ training programmes.]



### **National Mission on Sustaining Himalayan Ecosystem**

- National Mission on Sustaining Himalayan Ecosystem (NMSHE) is one of the eight missions under the National Action Plan on Climate Change (NAPCC).
- Launched in 2010, NMSHE delivers better understanding of the coupling between the Himalayan ecosystem and the climate factors.
- It aims to develop in a time bound manner a sustainable National capacity to assess the health status of the Himalayan Ecosystem.
- It enables the policy bodies in their policy-formulation functions and assists States in the Indian Himalayan Region with their implementation of actions selected for sustainable development.
- NMSHE adopts different approaches for building various capacities for sustainable development.
- The mission covers 11 states (Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, Assam and West Bengal) and UTs of Jammu and Kashmir and Ladakh.

### ***Doomsday Glacier***

- The melting of Antarctica's Thwaites Glacier or the "Doomsday Glacier" has long been a cause of concern because of its high potential of speeding up the global sea level rise happening due to climate change.
- Researchers at University of Gothenburg are saying that fears related to its melting are worse than previously thought, owing to the supply of warm water flowing underneath at a rate underestimated in the past.
- Called the Thwaites Glacier, it is 120 km wide at its broadest, fast-moving, and melting fast over the years.
- Because of its size (1.9 lakh square km), it contains enough water to raise the world sea level by more than half a metre.
- Studies have found the amount of ice flowing out of it has nearly doubled over the past 30 years.
- Thwaites's melting already contributes 4% to global sea level rise each year. It is estimated that it would collapse into the sea in 200-900 years.
- Thwaites is important for Antarctica as it slows the ice behind it from freely flowing into the ocean.

### **University of Gothenburg's Study**

- This study used an uncrewed submarine to go under the Thwaites glacier front for the first time to make observations.
- The submersible "Ran" measured among other things the strength, temperature, salinity and oxygen content of the ocean currents that go under the glacier.
- The researchers identified three inflows of warm water, among whom the damaging effects of one had been underestimated in the past.
- There is a deep connection to the east through which deep water flows from Pine Island Bay, a connection that was previously thought to be blocked by an underwater ridge.
- There were distinct paths that water takes in and out of the ice shelf cavity, influenced by the geometry of the ocean floor.

### ***South Island Subduction Initiation Experiment***

- Subduction zones are very destructive plate boundaries, which are the main drivers of plate tectonics. So, they are the primary reason why the plates on Earth actually move.
- A new research reveals how a young subduction zone was formed in the Puysegur Trench, a deep cleft in the floor of the south Tasman Sea.

#### **Zealandia**

- The secret continent of Zealandia is found on the boundary between the Australian and Pacific plates.
- Zealandia is a submerged section of continental crust the size of Australia around New Zealand.
- It was perched over the north end of this extensional zone.



- [The Puysegur Trench was formed by the subduction of the Indo-Australian Plate under the Pacific Plate to the south of New Zealand.]
- This study was done by the scientists aboard the research vessel Marcus Langseth who set out to this region in 2018 as part of the South Island Subduction Initiation Experiment.
- They studied the Puysegur margin in the "Roaring Forties," the latitudes between 40 degrees south and 50 degrees south where the winds and currents are brutal.

### Findings

- About 45 million years ago, a bit of the hidden continent of Zealandia got stretched and shifted, which led the denser oceanic crust to slam into it.
- A new plate boundary between the continental Australian and oceanic Pacific plates began to form because of a force called **extension** - Tectonic forces pulled the two plates apart like putty.
- As continental crust is thicker and more buoyant, the extensional forces working at the plate boundary couldn't crack Zealandia.
- Instead, the continental crust merely stretched as it spread, creating a thinned-out zone now known as the Solander basin.
- At the plate boundary, oceanic crust bumped up against oceanic crust, and continental crust against continental crust.
- **Continental crust is more buoyant than denser oceanic crust.**
- This difference in buoyancy allowed the denser Australian plate to slide under the lighter Pacific one, especially because the boundary between these plates was already weakened by the **strike-slip faulting**.

### Climate Change & Shift in Earth's Axis

- A new study has added shifting of Earth's axis to the list of consequences of climate change, which already includes rising sea levels, heat waves, melting glaciers and storms.
- While this change is not expected to affect daily life, it can change the length of the day by a few milliseconds.
- As per the study, since the 1990s, **climate change** has caused significant glacial ice to melt into oceans, which in turn has caused the Earth's poles to move in new directions.
- Other causes may include **terrestrial water storage** change in non-glacial regions due to climate change and **unsustainable consumption of groundwater** and other anthropogenic activities.
- The North Pole has shifted in a new eastward direction since the 1990s, because of changes in the hydrosphere.
- The calculations were based on satellite data from NASA's Gravity Recovery and Climate Experiment (GRACE) mission and estimates of glacier loss and groundwater pumping going back to 1980s.

#### Earth's Axis

- The Earth's axis of rotation is the line along which it spins around itself as it revolves around the Sun.
- The points on which the axis intersects the planet's surface are the geographical north and south poles.
- The location of the poles is not fixed, however, as the axis moves due to changes in how the Earth's mass is distributed around the planet.
- Thus, the poles move when the axis moves, and the movement is called "polar motion".
- Generally, polar motion is caused by changes in the hydrosphere, atmosphere, oceans, or solid Earth.
- According to NASA, data from the 20th century shows that the spin axis drifted about 10 centimetres per year.

### Microplastics in the Atmosphere

- According to the National Oceanic and Atmospheric Administration (NOAA), Microplastics measure less than 0.2 inches (5 mm) long.
- A new study has revealed that millions of microplastics are swirling around in Earth's atmosphere, with roads as the biggest contributor.

- Computer modeling showed how particles get transported vast distances across the globe and showed that nowhere is safe from the pollution.
- Likely hotspots for the highest levels of microplastics are Europe, Eastern Asia, the Middle East, India, and the United States.
- This environmental problem is likely to get much worse and could have serious effects on human health.
- **Source** - Roads provide the mechanical energy to move particles into the atmosphere.
- Other sources included the oceans (11%) and agricultural soil dust (5%), both of which involved strong winds pushing particles into the air.
- The atmosphere has the potential to transport plastics to disparate locations, across continents and to really remote locations that would otherwise be untouched by human pollution.
- **Upper limit** - The plastic particles could remain in the air for between one hour and 6.5 days.
- That upper limit is enough time for cross-continental transportation, which means even places like Antarctica are at risk of pollution.

### ***Climate Change destroying the Oldest Cave Art***

- A new study has found that one of the oldest pieces of the world's human heritage in Sulawesi island of Indonesia is weathering at an alarming rate due to climate change.
- **Significance** -The Sulawesi cave art is much older than the prehistoric cave art of Europe.
- These Pleistocene-era rock paintings found in caves of the Maros-Pangkep region in southern Sulawesi date back to 45,000-20,000 years.
- The area is known to be home to over 300 cave paintings, and more are being discovered with further explorations.
- **Artwork** in the area includes the world's oldest hand stencil (almost 40,000 years ago), created by pressing the hand on a cave wall, and spraying wet red-mulberry pigments over it.
- A nearby cave features the world's oldest depiction of an animal, a warty pig painted on the wall 45,500 years ago.
- **Findings of the Study** - The flakes of rock that have begun to detach from cave surfaces had calcium sulphate and sodium chloride salts. These salts form crystals on rock surfaces, causing them to break.
- The artwork made with pigments was decaying due to haloclasty process.
- This is a process triggered by the growth of salt crystals due to repeated changes in temperature and humidity, caused by alternating wet and dry weather in the region.
- Indonesia has also experienced several natural disasters in recent years, which have quickened the process of deterioration.
- **Recommendations** - Regular physical and chemical monitoring of the cave art sites would help.

### ***Eriophyid Mite Infestation in Amaranthus***

- Researchers in Kasaragod have found Eriophyid mite infestation in amaranthus, a common leafy vegetable cultivated all over the country.
- Even though Eriophyid mites were reported in Tanzania in 1992, it is the first report of the mite infestation in amaranth in India.
- The mite causes severe malformation of the amaranthus shoot, making it fibrous and reducing the yield.
- The affected plants showed crinkling deformity and malformation of tender leaves, a severe reduction in the leaf size and stunting.
- An observation trial to contain the pest immediately after a harvest reduced the mite damage symptoms almost completely for at least 15 days when the new shoots would be ready for the next harvest.



### **Mice Plague**

- A mouse plague that started around mid-March in Australia's eastern states is being called one of the worst plagues in decades.
- As a result of the rampaging mice, some farmers lost entire grain harvests, hotels have had to close and residents of affected areas reported mice falling out from roof tops causing "mice rain".
- The government of New South Wales (NSW) in Australia has extended a support package of \$50 million to the farmers affected by the plague.
- **Causes** - Abundant grain harvest, short breeding cycle of mice (a pair of breeding mice can give birth to a new litter every 21 days or so) and mice are not very choosy about food rodents.
- Rats and mice can stay in walls, ceilings, under cupboards or bathtubs, in rubbish heaps, wood piles, thick vegetation and in holes under buildings.
- **Impacts** - Rodents are capable of destroying food grains and can cause widespread damage to domestic households, commercial businesses, farms, manufacturers and livestock.
- Rodents can chew through materials, ruin supplies by excreting on them, cause diseases such as leptospirosis and typhus fever, and also carry fleas or ticks that can harm pets and humans.
- **Control** - Increasing zinc phosphide in mouse baits will help farmers to battle the higher than average mouse numbers in eastern Australia.
- To control the plague, the NSW government has now authorised the use of an otherwise outlawed poison called bromadiolone.

### **Whiteflies Invasion**

- The results of a study by a team from ICAR- National Bureau of Agricultural Insect Resources that set out to investigate a coconut field in Tamil Nadu in 2016 are released.
- **Patterns of occurrence** - The study found that there are about eight invasive species found in India.
- Most of these species are native to the Caribbean islands or Central America [or both]. It is difficult to pinpoint how they entered India.
- May be a nymph or baby insect may have come along with imported plants.
- Out of curiosity, people randomly pluck and bring tiny plants which lead to the accidental introduction of invasive species.
- **Invasion** - The first invasive spiralling whitefly *Aleurodicus dispersus* reported from Kerala in 1995 is now spread across India except Jammu & Kashmir.
- Similarly, the rugose spiralling whitefly which was reported in Pollachi, Tamil Nadu in 2016 has now spread throughout the country including the islands of Andaman Nicobar and Lakshadweep.
- **Reasons** - The host range of all of the invasive whiteflies was increasing due to their polyphagous nature (ability to feed on various kinds of food) and prolific breeding.
- *Aleurodicus dispersus* and *Aleurodicus rugioperculatus* have been reported on over 320 and 40 plant species, respectively.
- Other invasive whiteflies were found to expand their host range on plants species, especially coconut, banana, mango, sapota, guava, cashew, and ornamental plants and important medicinal plants.
- **Control** - Entomopathogenic fungi (fungi that can kill insects) specific to whiteflies are isolated, purified, grown in the lab or mass-produced.
- They are applied into the whitefly infested field in combination with the release of lab-reared potential predators and parasitoids.
- Continuous monitoring of the occurrence of invasive species, their host plants and geographical expansion is needed.



### ***Sensitive Birds***

- A new study noted that juvenile zebra finches raised in an environment that simulated city traffic noise had weaker immune responses and delayed vocal development than chicks raised in quiet nests.
- These findings indicate that young songbirds, just like human children, are particularly vulnerable to the effects of noise because of its potential to interfere with learning at a critical developmental stage.
- The traffic noise pollution also has the potential to affect the cultural evolution of birdsong.
- A previous study proposed that traffic noise reduced breeding success in Willow Warblers (*Phylloscopus trochilus*).
- Another paper found that hearing the noises of cars driving by was enough to inhibit cognitive performance in songbirds.
- The loud noise has been known to disrupt the ability of birds to communicate and even attract mates.

### ***Effects of Meat Industry on Environment***

- India measure nutrition per acre, health per care, and our work with real farmers and true cost accounting is showing that small farms with biodiversity, without chemicals, can feed two times Indian population.
- Livestock provides just 18% of calories but takes up more than 80% of farmland. Now, 81% of the world's agricultural land is used to provide meat, eggs, and dairy products.
- But, plant foods require far less land and far fewer resources, and could feed the entire world's population.
- A global switch to plant-based diets could save up to 8 million lives by 2050 and reduce greenhouse gas emissions by two thirds.
- **Carnism** is the invisible belief system that conditions us to eat certain animals when we would never dream of eating others. Three Ns of justification for consuming meat is normal, natural, and necessary.
- The meat industry has been promoting meat consumption by,
  - **Objectification**, viewing animals as things rather than living, breathing, feeling beings.
  - **Deindividualization**, looking at animals as a group rather than individuals with their own personalities and preferences.
  - **Dichotomization**, categorizing animals into edible or inedible.
- Animals around the world are largely being held in captivity, in extremely toxic and inhumane conditions.
- If viruses are coming out of that, that's the microbiome's check on the reality that we live in.

### ***Glyphosate***

- It is a water soluble toxic broad-spectrum systemic herbicide.
- This molecule found in our food and water system that causes huge endocrine disruption in our bodies and poisons our environment.
- It poisons our genome and blocks the ability to make glutathione, which is our main antioxidant.

### ***TIFR's Carbon dioxide Conversion Process***

- The Tata Institute of Fundamental Research (TIFR) scientists have found the cheapest carbon dioxide conversion process.
- This **magnesium-assisted** process mixes carbon dioxide, water and magnesium, at room temperature and pressure to get methane, methanol, formic acid and some hydrogen.
- Magnesium carbonate is the by product. It is used in the production of green cement and in the pharma industry.
- With this process, one can make methane on Mars. Methane is a rocket fuel. This is because,
  1. Mars's atmosphere is almost entirely comprised of carbon dioxide.
  2. Mars has water in the form of ice.



3. Its soil contains an abundance of magnesium.

### **India cuts Cyclone Deaths**

- Since the 1999 super cyclone in Odisha (claimed over 10,000 lives) to Cyclone Yaas (casualties limited to 6 lives), India seems to have made a remarkable progress in disaster risk reduction (DRR).
- **Factors** that limiting casualties to negligible numbers are,
  1. Cooperation of both the Centre and states,
  2. Large-scale rescue and relief operation by the state, National Crisis Management Committee, National Disaster Response Force and State Disaster Response Force, Army, Navy, etc.
  3. Significant increase in the funding for DRR activities - up from an average \$3-4 billion over 5 years in the last decade to \$4 billion a year for the last 2 consecutive years,
  4. The most modern satellites and early warning systems predicting the course of cyclones a week in advance, giving authorities' time to prepare.
- This is seen as the result of a rigorous exercise and strengthening of the DRR mechanism over the last few years.
- This remarkable demonstration of “Zero Casualty” approach of India towards every calamity has been celebrated at global forums with the UN Office for Disaster Risk Reduction (UNDRR).

### **Dahanu Gholvad Sapota**

- In a major boost to exports of Geographical Indication (GI) certified products, a consignment of Dahanu Gholvad Sapota (Chikoo) from Palghar district of Maharashtra was shipped to the United Kingdom.
- Ghovad Sapota has a unique taste that is believed to be derived from calcium rich soil of Gholvad village.
- **Promoter** - The Agricultural and Processed Food Products Export Development Authority ([APEDA](#)) has been thrust on promotion of exports of GI products.
- GI products with its uniqueness, intrinsic value and practically no competition from outsiders, offers good potential for export.
- **Sapota** is grown in many states- Karnataka, Gujarat, Maharashtra, Tamil Nadu, West Bengal and Andhra Pradesh.
- Karnataka is known to be the highest grower, followed by Maharashtra.
- To know more about Geographical Indication (GI) tag, [click here](#).

### **Beema Bamboo**

- The Tamil Nadu Agricultural University (TNAU) has designed an ‘oxygen park’ within its premises at Coimbatore with Beema or Bheema Bamboo.
- **Superior Clone** - Beema Bamboo is a superior clone, selected from Bambusa balcooa, a higher biomass yielding bamboo species.
- This thorn-less species is considered to be one of the fastest-growing plants. It grows one-and-a-half feet per day under tropical conditions.
- This clone is developed by the conventional breeding method (Tissue Culture). So, it is free from pest and disease.
- It is not a product of genetically modified organisms. In this case, new culms (hollow stem of a grass or cereal plant especially that bears flower) only grow around the mother shoot and hence it is non-invasive.
- **Sterile** - As it is sterile, this bamboo does not produce any seed and does not die also for several hundred years and keeps growing without death.
- As a result, this species can be able to establish permanent green cover.
- Since the plants are produced through tissue culture, the culms grow almost solid and adapt to different soil and climatic conditions.





- After every harvest cycle, it re-grows and doesn't require replanting for decades.
- **Carbon Sink** - This species is the best 'carbon sink' to mitigate carbon dioxide (CO<sub>2</sub>) emissions.
- A four-year-old bamboo may absorb over 400 kg of CO<sub>2</sub> per annum.
- A fully-grown bamboo tree generates over 300 kg of oxygen annually.
- As its rhizome and root formation provide a strong foundation, the plant becomes robust against natural forces and plays a major role in mitigating global warming and climate change.

### **Lightning Cleanser**

- A team of researchers found that lightning bolts increase the ability of the atmosphere to cleanse itself or breakdown greenhouse gases (GHGs).
- The extreme amounts of hydroxyl radical (OH) and hydroperoxyl radical (HO<sub>2</sub>) were discharged during lightning events. This OH initiates chemical reactions and breaks down molecules like the GHG methane.
- To know more about lightning, [click here](#).

### **SARS-COV2 in Asiatic Lions**

- Eight Asiatic Lions housed in the Nehru Zoological Park (NZP), Hyderabad were infected with SARS-COV2.
- The samples from the lions were shared with the Centre for Cellular and Molecular Biology - Laboratory for Conservation of Endangered Species (CCMB-LaCONES) Hyderabad.
- To know more about Asiatic Lions, [click here](#).

## **SPECIES IN NEWS**

### **Hoolock gibbon**

- The Centre for Cellular and Molecular Biology (CCMB) study has found that there is only one species of Hoolock gibbons and not two in India.
- The Western Hoolock gibbons (Hoolock Hoolock) are the only apes in India. The other species, Mishmi Hills gibbons (Hoolock leuconedys), is not present here.
- There was confusion before as these small apes present in the northeast have populations had different physical features.
- The CCMB team corroborated the data with **mitogenome** (genetic information contained in mitochondria) analysis and estimated that the split between two species occurred 1.49 million years ago.
- The new findings will help design conservation programmes by inter-breeding the two populations and maintain their genetic diversity.

### **Asian Gracile Skink**

- A new species of skink was discovered at Anaikatti hills in Coimbatore - Asian Gracile Skink.
- Named *Subdoluseps nilgiriensis*, the reptile is closely related to *Subdoluseps pruthi* found in parts of the Eastern Ghats.
- It was found in a dry deciduous area, showing that even the dry zones of our country are home to unrealised skink diversity.
- It is currently considered a **vulnerable species** under IUCN, as there are potential threats.
- **Threats** - Seasonal forest fires, housing constructions and brick kiln industries in the area, rapid urbanisation,

#### **Skinks**

- Most skinks are diurnal and usually secretive. They are non-venomous.
- They resemble snakes because of the often-inconspicuous limbs and the way they move on land.
- Such resemblance result in humans killing them.
- Skinks usually feed on insects like termites, crickets and small spiders.

which has increased the road networks in the area.

### ***Crocidura narcondamica***

- It is a new species of insectivorous mammal, a white-toothed shrew discovered by the scientists from the Zoological Survey of India (ZSI) from Narcondam Island of the Andaman and Nicobar group of islands.
- Shrews are small and mouse-like mammals, and they live in sub-leaf stratum in the forests.
- Insects are the primary diet of these animals.
- This new species has a distinct external morphology with darker grey dense fur with a thick, darker tail compared to other species of the *Crocidura* genus.
- Its craniodental characters also make them distinct.



### **Narcondam Island**

- The stratovolcanic Narcondam Island is an oceanic island of volcanic origin situated in the Andaman and Nicobar Archipelago, India.
- The isolated island is one of most remote and uninhabited islands of the Andaman and Nicobar archipelago.
- This thickly vegetated island is bordered by cliffs on the southern side and crested by three peaks is part of a volcanic arc that continues northward from Sumatra to Myanmar.
- **Species found** - The endemic Narcondam Hornbill is found only here.
- The island provides habitat for the Andaman Scops Owl, Nicobar Bat, Andaman Dwarf gecko and Andaman day gecko, all of which are species endemic to the Andaman and Nicobar islands.
- **Recognitions** - Narcondam Island has been identified as an Important Bird Area by BirdLife International and Bombay Natural History Society.
- It has been notified as Sanctuary under the Wildlife (Protection) Act, 1972 granting is further protection.

### **Sturgeons**

- The nearly 7-foot-long Detroit River fish is one of the largest ever caught in the U.S., which could be more than 100 years old.
- This large fish is a lake sturgeon (*Acipenser fulvescens*), but the planet's largest freshwater fish species is the beluga sturgeon (*Huso huso*).
- **Beluga sturgeon** is the biggest of the 27 sturgeon and paddlefish species alive today. It can reach a maximum length of more than 8 m.
- They are living between Europe and Asia in the Black, Azov and Caspian seas, and the rivers feeding them.
- Beluga sturgeons can live more than 100 years, like lake sturgeon, which gives them plenty of time to grow. So, there's a lot of time to eat.
- They are listed as **critically endangered** on the IUCN Red List of Threatened Species, the category for species most at risk of extinction.
- This species is under great pressure due to poaching. Adult females are prized for their fish eggs (caviar) and valued at more than \$8,000/kg.
- **White Sturgeon** - The title for biggest growing sturgeon today may actually belong to the white sturgeon (*A. transmontanus*).
- People are probably more likely to see larger white sturgeon than beluga sturgeon, as white sturgeons are probably better protected.
- For now, white sturgeons are not threatened with extinction and their population is stable, according to the IUCN. However, they are threatened by the construction of dams.



- To know more about Sturgeons, [click here](#).

### **American Red-eared Slider**

- The invasive red-eared slider (*Trachemys scripta elegans*), released in natural water bodies by people who keep them as pets, could threaten to invade the natural water bodies across the Northeast.
  - Northeast is home to 21 of the 29 vulnerable native Indian species of freshwater turtles and tortoises.
  - Northeast is home to 72% of the turtle and tortoise species in India.
- Red-eared slider derives its name from red stripes around the part where its ears would be and from its ability to slide quickly off any surface into the water.
- They are native to the **U.S. and northern Mexico**.
- This turtle is a popular pet due to its small size, easy maintenance, and relatively low cost.
- But, they grow fast and leave nothing for the native species to eat. Hence, they are **invasive species**.
- **Catch-22 situation** - People who keep red-eared slider as pets become sensitive about turtle conservation but endanger the local ecosystem by releasing them in natural water bodies after they grow big.
- Also, these turtles can impact human health as they may accumulate toxins in their tissues which pass on with the food chain upto humans.



## **20. SCIENCE AND TECHNOLOGY**

### **SPACE**

#### **Cosmic Rays & Positrons**

- Generally, high energy particles are lower in number in the cosmic Universe. But, there are an excess number of high energy particles of the antimatter counterpart of the electrons, called positrons.
- Now researchers from the Raman Research Institute (RRI) found that cosmic rays propagating through Milky Way galaxy interact with matter to produce other cosmic rays with electrons and excess of positrons.
- [Raman Research Institute, Bengaluru is an autonomous institution of the Department of Science and Technology.]
- **Positron excess** - Positrons with energy of more than 10 giga-electronvolts (GeV) are found more in number. However, Positrons with energy more than 300 GeV are lower in comparison to what is expected.
- This behaviour of positrons between 10 and 300 GeV is called the 'positron excess' – Caused by the new cosmic rays.

#### **Galactic Clouds**

- The Milky Way consists of giant clouds of molecular hydrogen. They are the seats of the formation of new stars.
  - They can be as massive as 10 million times the Sun's mass and they can extend up to 600 light-years.
  - Cosmic rays, produced in supernovae explosions propagate through these clouds before they reach the Earth. They interact with molecular hydrogen and can give rise to other cosmic rays.
  - [Components of cosmic rays - Protons, antiprotons, electrons, positrons, boron, carbon among others.]
  - As they propagate through these clouds, they decay from their original forms and intermix, lose their energy by energising the clouds, and may also get re-energised.
  - These galactic clouds provide the astronomers a crucial input - the number of giga-electronvolt cosmic rays.

- These help determine the excess number of positrons that reach the Earth.

### **OSIRIS-REx**

- Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer (OSIRIS-REx) spacecraft will depart asteroid Bennu, and start its two-year long journey back to Earth.
- OSIRIS-REx is NASA's first mission to visit a near-Earth asteroid, survey its surface and collect a sample from it.
- The seven-year-long mission was launched in 2016, reached its target in 2018. In October 2020, the spacecraft touched asteroid Bennu.
- When the spacecraft finally returns in September 2023, it will bring back the largest sample of dust and pebbles collected by a NASA mission since the Apollo astronauts collected samples of Moon rock.
- Bennu is considered to be an ancient asteroid that has not gone through a lot of composition-altering change through billions of years.
- This means that below its surface lie chemicals and rocks from the birth of the solar system. Studying Bennu might give clues about the origins of the solar system, the sun, the Earth and the other planets.

### **Asteroid Bennu**

- Named after an Egyptian deity, Bennu is located about 200 million miles away from the Earth. It was discovered by a NASA-funded Lincoln Near-Earth Asteroid Research team in 1999.
- It is a **B-type asteroid**, implying that it contains significant amounts of carbon and various other minerals.
- Because of its high carbon content, Bennu reflects about 4% of the light that hits it, which is very low. (Earth reflects 30% of the light that hits it.)
- Around 20-40% of Bennu's interior is empty space and it was formed in the first 10 million years of the solar system's creation, implying that it is roughly 4.5 billion years old.
- There is a slight chance that Bennu, a Near Earth Object (NEO), might strike the Earth in the next century, between 2175 and 2199.
- [NEOs are comets and asteroids nudged by the gravitational attraction of nearby planets into orbits which allow them to enter the Earth's neighbourhood.]

### **The Unicorn**

- It is the name of the smallest-known black hole in the Milky Way galaxy and the closest to our solar system.
- A luminous star called a red giant orbits with the black hole in a binary star system named V723 Mon in the Monoceros constellation.
- The black hole 'Unicorn' is roughly three times the mass of our sun, testing the lower limits of size for these extraordinarily dense objects that possess gravitational pulls so strong not even light can escape.
- It is located about 1,500 light years - the distance light travels in a year, 9.5 trillion km - from Earth.
- 'The Unicorn' falls into "mass gap" between the largest-known neutron stars (2.2 times the mass of our sun) and what previously had been considered the smallest black holes at around five times the sun's mass.
- Its strong gravity alters the shape of its companion star in a phenomenon known as **tidal distortion**, making it elongated rather than spherical and causing its light to change as it moves along its orbital path.
- Unlike some other black holes orbiting with a star, this one was not observed to be drawing material from its companion, which is 173 times more luminous than our sun.

### **Three Categories of Black Holes**

- Black holes form when massive stars die and their cores collapse. They are electromagnetically dark, and so they are difficult to find.
- Their effects on the companion star are what indicate their presence.



- **Stellar mass black holes** - They are the smallest black holes formed by the gravitational collapse of a single star.
- **Gargantuan supermassive black holes** - They are black holes at our galaxy's center, 26,000 light years from Earth, which is four million times the sun's mass.
- **Intermediate-mass black holes** - They have masses somewhere in between the above two.

### **Millisecond Pulsars**

- A millisecond pulsar is a pulsar that spins hundreds of times per second or, equivalently, once every few milliseconds.
- Under the project Transients and Pulsars with MeerKAT (TRAPUM), a team of astronomers has discovered eight rare millisecond pulsars hiding inside global clusters of stars surrounding the Milky Way.
- They used the MeerKAT telescope to search specifically for millisecond pulsars, which are much rarer than slower spinning pulsars.
- [MeerKAT telescope is an array of 64 individual satellite dishes run by the South African Radio Astronomy Observatory (SARAO).]
- To do this, they focused on nine globular clusters — a collection of stars that are bound together by their own gravity and orbit outside the edge of a galaxy — surrounding the Milky Way.
- Millisecond pulsars are quite rare because their rapid spins can be achieved **only in binary systems**.
- [In binary systems, two stellar bodies rotate around one another.]
- For pulsars, the neutron star's partner is usually a star, but occasionally one member of the binary can be a white dwarf, neutron star or a black hole.
- But they are also found in the globular clusters. In fact, over 90% of the known pulsars in globular clusters are millisecond pulsars.
- Millisecond pulsars can be regarded as **super-precise cosmic clocks**.

### **Pulsar**

- A pulsar is a neutron star that gives off two beams of radio waves at each pole, due to its strong magnetic field, while also rapidly spinning because of its incredibly large mass.
- A neutron star has city-sized stellar objects packed with a mass of at least 1.4 times the mass of our sun, which emerges from the explosive deaths of their parent stars.
- They look like flashing stars, visible only when the beams shine directly at us.
- Unlike the millisecond pulsar, the vast majority of pulsars rotate once every few hundreds of milliseconds or more.
- A millisecond pulsar, on the other hand, is a pulsar that spins hundreds of times per second or, equivalently, once every few milliseconds.

### **Winchcombe Meteorite**

- A piece of the Winchcombe meteorite that touched down in the Winchcombe town in Gloucestershire in the UK in February 2021 will be displayed at the National History Museum.
- Winchcombe Meteorite is a 103 gram fragment of black rock resembling coal. It is “astonishingly rare” as it is a carbonaceous meteorite.
  - Out of about 65,000 known meteorite types, only about 1,000 are of carbonaceous type.
- Winchcombe Meteorite dates back to the birth of the solar system nearly 4.5 billion years ago and therefore examining it may offer clues about the beginning of the solar system and

**Meteoroids** - They are objects in space that range in size from dust grains to small asteroids. They are “space rocks”.

**Meteors** - When meteoroids enter the Earth's atmosphere they are called meteors.

**Meteorites** - If a meteoroid enters the Earth's atmosphere and hits the ground, it is called a meteorite.



maybe even the Earth.

- Space agencies have launched specific missions to asteroids to be able to study them - [OSIRIS-REx](#), [Hayabusa2](#) and [other missions](#).

### ***Theory on Sun-Earth interaction in Magnetosphere***

- Indian Scientists from the Indian Institute of Geomagnetism (IIG) have developed a theory that helps understand the complicated nature of Sun-Earth interaction's happening in the magnetosphere.
- [Magnetosphere is an area of space around Earth that is controlled by the Earth's magnetic field.]
- This theory solves every bit of uncertainty regarding the conflict between the observations from Magnetospheric Multiscale (MMS) Mission.
  - MMS is a NASA robotic space mission to study the Earth's magnetosphere and theoretical predictions.
  - In 2017, in NASA's expedition to unlock Sun-Earth interaction's complicated nature, MMS spacecraft observed negative monopolar potential.
  - [Negative monopolar potential is the electric field potentials which can be visualized in the form of single-humped pulse-type structures].
- The new theory provides a better understanding of the characteristics of the ion-hole structures (a localized plasma region where the ion density is lower than the surrounding plasma).
- It has completely ruled out the necessity of the upper limit in the temperature ratio between ions and electrons for the generation of a special kind of wave called Bernstein Green Kruskal (BGK) waves.
- The electrons that are not part of ion hole dynamics also play a vital role.
- The new theory also sheds light on the generation of the structures leading to the unraveling of nature's greatest mystery that causes phenomena - plasma transport and heating of plasma.
- [Plasma is the fourth state of matter after solid, liquid, and gas. It is the most natural and widely observed state of matter in the entire universe.]

### ***Reaching Mars with Induced Torpor***

- A new study finds that the zebrafish's hibernating habits (induced torpor - a state of reduced metabolic activity) may help humans reach Mars.
- Hibernation is a physiological condition that protects various species against harsh conditions, such as food scarcity and low environmental temperatures.
- **Study** - The researchers induced torpor in zebrafishes and exposed them to radiation like what would be experienced on a 6-month journey to Mars.
- The results showed that induced torpor lowered the metabolic rate within the zebrafish and created a radioprotective effect, protecting against the harmful effects of radiation.
- There was a reduction in metabolism and oxygen concentration in cells promotes less oxidative stress and greater resistance to radiation.
- These insights into how a reduction in metabolic rate could offer protection from radiation exposure could help humans achieve a similar kind of hibernation during long-term space flight.
- So, replicating a similar model of hibernation may protect astronauts against the harsh conditions of space flight by reducing brain function which would cut down on psychological stress, etc.,

### ***Coincidence of Supermoon and Total Lunar Eclipse***

- On May 26, 2021, the "supermoon" of 2021 will coincide with this year's only total lunar eclipse after nearly six years.
- **Supermoon** - A supermoon happens when the full moon coincides with the moon's closest approach to Earth in its orbit (perigee). The Moon appears to be brighter but it is also larger than a regular full moon.
- The term supermoon was coined by astrologer Richard Nolle in 1979.



- In a typical year, there may be two to four full supermoons and two to four new supermoons in a row.
- **Total Lunar Eclipse** - It is a celestial event during which the Moon and Sun are on opposite sides of the Earth. A lunar eclipse only takes place when there is a full Moon.
- Because of the total lunar eclipse, the moon will also appear to be red.
- This is because the Earth will block some light from the Sun from reaching the moon and as the Earth's atmosphere filters the light, it will soften the edge of Earth's shadow giving the Moon a deep, rosy glow.
- Blood moon during a total lunar eclipse happens when the Earth passes in between the Sun and the Moon.
- There is another celestial event called "Super Blood Wolf Moon", which is a combination of Full Moon, Perigee, Lunar Eclipse in January month.

## DEFENCE

### *Python-5 Missile*

- India's indigenously-developed Light Combat Aircraft Tejas aircraft of Aeronautical Development Agency (ADA) has been cleared to carry fifth generation Python-5 missile as part of its weapons package.
- Python-5 Air-to-Air Missile (AAM), one of the world's most sophisticated guided missiles, would significantly enhance Tejas' combat prowess.
- It is developed by the Israeli company Rafael Advanced Defense Systems.
- It is powered by a solid propellant rocket engine. This dual use missile is suitable for air-to-air and surface-to-air missions.
- With Mach 4 speed, it can engage enemy aircraft from very short ranges and near beyond visual range. Range >20km
- It has lock-on-before launch (LOBL) and lock-on-after launch (LOAL) capabilities.

## HEALTH

### *Community Transmission Tag*

- According to the World Health Organisation (WHO), since the beginning of the pandemic, India has never marked itself as being in 'Community Transition (CT)'.
- Instead, India is opting for the lower, less serious classification called 'cluster of cases'.
- Countries such as the United States, Brazil, United Kingdom, France have all labelled themselves as being in 'community transmission'.
- Among the 10 countries with the most number of confirmed cases, only Italy and Russia didn't label themselves as being in 'CT'.

### **Community Transmission**

- Community Transmission (CT) is a pandemic stage when new cases in the last 14 days can't be traced to those who have an international travel history, when cases can't be linked to specific cluster.
- The WHO guidelines suggest four subcategories within the definition of CT - CT-1 (Lowest Incidence), CT-2, CT-3 and CT-4 (Highest Incidence).

### **Four Stages of a Pandemic Transmission**

- Four Stages - Imported Transmission, Local Transmission, Community Transmission and Epidemic.
- States and countries are expected by WHO to classify themselves appropriately and point to the kind of public health measures in place.
- **Imported Transmission** is a stage when cases of infected people are imported from affected countries without any local origin in that particular home city or country via the borders and airports.
- This can be controlled through thermal screening and quarantine.



- **Local Transmission** is defined as the transmission through direct contact with an infected person (who possibly had a travel history to other already affected countries) within the country.
- **Community Transmission** takes place when the source of an individual's infection can't be traced and isolated.
- This stage signifies that a virus is circulating in the community and can affect people with no travel history to affected areas or of contact with an infected person.
- **Epidemic** is the Stage 4, which is the most severe stage of an infectious disease spreading within a country.
- In this stage, the disease becomes an epidemic in a country, with large numbers of infections and deaths with no end in sight.

### Oxygen on Wheels

- The Indian Navy provided on 'Oxygen on Wheels' plant to Palasa COVID Care Centre. The plant has been connected up with the Oxygen pipeline at the Palasa Centre.
- The plant provides oxygen round the clock for up to 12 patients admitted in the hospital.
- 'Oxygen on Wheels' is a unique initiative launched by the Naval Dockyard, Visakhapatnam.
- In this, the PSA Oxygen Plant was integrated on a mobile platform to serve remote hospitals.
- Similarly, the Jain International Trade Organisation, in association with the Greater Chennai Corporation, has launched "Oxygen on Wheels".
- In this initiative, the buses laden with oxygen concentrators will be deployed outside government hospitals.

### Oxygen Concentrators

- By affecting the lungs, Covid-19 reduces the oxygen level dangerously.
- Oxygen concentrators can be used by the patient to enhance oxygen levels to clinically acceptable levels (Oxygen Therapy).
- **Working** - Oxygen concentrators will suck in atmospheric air and filter other gases, and compress oxygen. It increases the oxygen concentration.
- Depending on need, the litres of oxygen per minute have to be regulated.
- Oxygen concentrators can supply between 0.1 litres per minute (LPM) to 5 to 10 LPM. A concentrator has 92-95% pure oxygen.
- **Usage** - Oxygen concentrators can be used when the oxygen requirement of the patient is a maximum of 5 litres per minute.
- Only mild to moderately ill Covid-19 patients (who have an oxygen saturation level between 90 and 94) should use an oxygen concentrator at home, until they get hospital admission.
- Anyone with oxygen saturation depleting below 80-85 may need higher flow of oxygen and will have to switch to an oxygen cylinder or liquid medical oxygen supply or get hospitalised.
- They are useful for patients with post-COVID complications which needs oxygen therapy.
- However, patients using oxygen concentrator themselves without suitable medical advice can be harmful.
- **Production** - Besides multi-national brands, several Indian start-ups, funded under the CAWACH, have developed efficient and cost effective Oxygen Concentrators.
- [CAWACH (Centre for Augmenting War with Covid 19 Health Crisis) is a programme of Department of Science & Technology.]

#### Types of Oxygen Concentrators

- **Continuous flow oxygen concentrator** will provide the same flow of oxygen every minute unless it is turned off irrespective of whether patient is breathing it in or not.
- **Pulse dose oxygen concentrator** detects breathing pattern and dispenses oxygen when it detects inhalation.
- The oxygen dispensed per minute will vary in second case.





- Given their usefulness during the second wave of Covid Pandemic, 1 lakh Oxygen Concentrators are being procured through PM CARES fund.

### **Oxygen Saturation**

- Oxygen level is measured by oxygen saturation, known as SpO<sub>2</sub>, which is a measure of the amount of oxygen-carrying haemoglobin in the blood.
- A healthy individual will have an arterial oxygen saturation of 95% – 100%.
- **WHO** - If the oxygen saturation is 94% or lower, the patient needs to be treated quickly. A saturation of less than 90% is a clinical emergency.
- **Union Ministry of Health** - A patient with oxygen concentration less than or equal to 93% requires hospital admission, while those with below 90% is classified as a severe disease, requires admission in ICU.

### **Covid - A Vascular Disease**

- A new study shows that the SARS-CoV-2's spike proteins, not only help the virus infect its host by latching on to healthy cells, but also play a key role in the disease itself.
- It explained that Covid-19 is not only a respiratory disease, but also a **vascular disease** by demonstrating how the virus damages and attacks the vascular system (comprising the blood vessels) on a cellular level.
- The findings help explain Covid-19's wide variety of seemingly unconnected complications, and could open the door for new research into more effective therapies.
- The exposure of healthy endothelial cells (which line arteries of heart) to the spike protein showed that the spike protein damaged the cells by binding ACE2 (a human protein).
- This binding disrupted ACE2's molecular signalling to mitochondria (organelles that generate energy for cells), causing the mitochondria to become damaged and fragmented.

### **New Corona Variants escape Immune Response**

- A new study found out how the fast-spreading variants of the SARS-CoV-2 coronavirus carry mutations that enable the virus to escape some of the immune response created naturally or by vaccination.
- [New variants are Brazilian variant (P.1), the United Kingdom variant (B.1.1.7), South African variant (B.135.1) and Indian variant (B.1.617).]
- **Study** - The scientists mapped how important classes of neutralising antibodies bind to the original pandemic strain of SARS-CoV-2 and how the process is disrupted by mutations found in new variants.
- In the study, the researchers focused mainly on three mutations in the SARS-CoV-2 spike protein: K417N, E484K and N501Y.
- Alone or in combination, these mutations are found in most major SARS-CoV-2 receptor binding site, where the virus attaches to host cells.
- Several of these mutations are clustered in one site, known as the "receptor binding site", on the spike protein of the virus.
- **Findings** - Antibody responses to the SARS-CoV-2 receptor binding site are very potent in neutralizing the original Wuhan strain.
- But certain new variants with mutations are able to escape the antibody responses - perhaps eventually necessitating updated vaccines.
- Also, the three key viral mutations do not alter other vulnerable sites on the virus outside the receptor binding site.

### **B.1.617 Variant - A Global Concern**

- The World Health Organization said that the B.1.617 variant - first identified in India in December 2020 - was being classified as a variant of global concern.
- Due to its increased transmissibility, the variant has spread to other countries, and many nations have restricted movements from India.



- The WHO Foundation launched “Together for India” appeal to raise funds to purchase oxygen, medicines and protective equipment for health workers.
- To know more about the double mutant B.1.617 variant, [click here](#).

### **Black Fungus**

- Black fungus or mucormycosis, a rare but serious fungal infection, is being detected frequently among Covid-19 patients in some states.
- **Causes** - Mucormycosis is caused by a group of moulds known as mucormycetes present naturally and abundantly in the environment.
- Sinuses or lungs of such individuals get affected after they inhale fungal spores from the air. It can lead to loss of the upper jaw and even the eye.
- It mainly affects people who are on medication for health problems that reduces their ability to fight environmental pathogens and sickness.
- **Symptoms** - The disease often manifests in the skin and also affects lungs and brain. The symptoms include,
  - Sinusitis - nasal blockade or nasal discharge (blackish/bloody);
  - Pain and redness on the cheek bone, eyes; one-sided facial pain, numbness or swelling; Blackish discoloration over nose/palate;
  - Loosening of teeth, jaw involvement;
  - Blurred or double vision with pain;
  - Thrombosis, necrosis, skin lesion;
  - Chest pain, pleural effusion, bloody vomits, altered mental status.
- **Vulnerable** - Vulnerable groups include those patients with diabetes mellitus, cancer, or those who have had an organ transplant.
- Those who are in immunosuppression by steroids, prolonged ICU stay, and comorbidities – post transplant/malignancy, voriconazole therapy.
- **Prevention** - Use masks if visiting dusty construction sites. Wear shoes, long trousers, long-sleeved shirts and gloves while handling soil, moss or manure. Maintain personal hygiene including a thorough scrub bath.
- **Diagnosis** - It depends on the location of the suspected infection.
- A sample of fluid from respiratory system may be collected for testing in the lab; or a tissue biopsy or a CT scan of lungs, sinuses etc may be done.
- **Treatment** - Mucormycosis needs to be treated with antifungal medicine. In some cases, it can require surgery.
- To maintain adequate systemic hydration, the treatment includes infusion of normal saline (IV) before infusion of amphotericin B and antifungal therapy, for at least 4-6 weeks.

### **White Fungus**

- As the central government asks states to notify black fungus or [mucormycosis](#) an epidemic, an infection called white fungus has been found to affect some people. It is more dangerous than black fungus.
- **Causes** - White fungus infection can be caused due to low immunity, or if people come in contact with things that contain these moulds.
- Diabetes patients, cancer patients, and those who are taking steroids for a long period of time are more at risk of getting infected.
- White Fungus is affecting those coronavirus patients who are on oxygen support. It is directly affecting the lungs of these patients.
- It is the main reason of Leucorrhoea in women - flow of a whitish, yellowish, or greenish discharge from the vagina.



- **Symptoms** - Patients of white fungus show Covid-like symptoms but test negative; the infection can be diagnosed through CT-Scan or X-ray.
- White fungus affects lungs, stomach, kidney, brain, nails, skin, private parts and mouth of the infected person.
- **Prevention** - White Fungus infection can be prevented by sanitising the surroundings. The oxygen or ventilator must be sanitised properly.

### **CT Scan for Covid**

- Several Covid positive patients with mild to moderate Covid symptoms, and some with negative RT-PCR reports but Covid symptoms are making a beeline for CT scans (who actually need not take CT scan).
- **Working** -Computed Tomography (CT) scan is a combination of multiple X-rays and a computer process to create a picture of the body or any part of the body.
- Chest CT is a routine imaging tool for pneumonia diagnosis. Compared to RT-PCR, chest CT imaging is more reliable, sensitive and rapid method to diagnose and assess COVID-19.
- **Recommendation** - Doctors said that Covid patients with worsening condition in home isolation or in hospital with critical condition are cases recommended for CT scan to detect the infection level.
- If a patient's oxygen level is going down below 95 during home quarantine or his health is not improving even after a week after coming Covid positive then such patients should get their CT scan done.
- If Covid patient is in home isolation are doing well then they should only monitor their oxygen level 5-6 times in a day through a pulse oximeter and if oxygen level is above 96 than he should not panic.
- If a patient is showing mild or moderate symptoms and his report is false negative must home quarantine and keep a tab on the oxygen level.

### **D-Dimer Test**

- Seeing the current trend of failed RT-PCR tests, doctors have suggested other tests when reports of patients with symptoms of coronavirus come negative. The suggested tests are D-Dimer, CRP, Interleukin-6.
- The latest wave has led to the new and rare symptoms such as blood clotting, in which case, the-above mentioned tests are required.
- **D-Dimer** - When a body part is damaged or is bleeding, the body tries to stop the bleeding by clumping together the cells there to make a network using fibrin protein. This makes a blood clot.
- When the healing is done, the body starts to degrade that clot and starts breaking down the fibrin. When the fibrin breaks down, it forms fibrin degradation products or FDPs. One of the FDP is D-Dimer.
- **Test** - The D-Dimer test shows the presence of clots in the lung of the body when COVID becomes serious.
- D dimer is detectable for up to 8 hours after formation until the time the kidney clears it out.
- A higher level of D dimer in the body shows that there is a lot of clot in the body which can be a dangerous sign when affected with COVID.
- So D-Dimer test is used to assess for severity of COVID disease and if the patient is going to need oxygen in the future.

### **Ivermectin**

- The World Health Organisation has recommended against the use of 'Ivermectin' drug for COVID-19 except within clinical trials.
- [Ivermectin is used for the treatment and eradication of two life-threatening illnesses - Onchocerciasis and filariasis.]
- Orally-administered Ivermectin is still listed in India's revised national COVID-19 treatment protocol as a possible treatment option for mild COVID-19 patients under home isolation.
- **The Claim** - Indian physicians who continue to use this drug state that it is an approved anti-parasitic agent.

- They say that it has shown, in laboratory settings, to inhibit SARSCOV2 replication. They say that it is effective in reducing the multiplication of certain RNA viruses such as SARS and COVID RNA.
- As it binds to the spike protein site of the RNA virus and reduces the multiplication and attachment of the virus to the ACE receptor in the nose, Ivermectin prevents attachment of virus to the nasal epithelium.

### **Genome Sequencing to Track Covid Variants**

- In early March 2021, the Indian SARS-CoV-2 Genomic Consortia (INSACOG), which conducts genomic sequencing of Covid variants in India, warned of a new and contagious form of the novel coronavirus.
- [Genome sequencing is figuring out the order of DNA nucleotides or bases (As, Cs, Gs, and Ts) in a genome that make up an organism's DNA.]
- The INSACOG began the work by sequencing samples of people who had a travel history from the United Kingdom (UK) and a proportion of positive samples in the community.
- **Findings** - Foreign variants identified were the B.1.1.7 (first identified in the UK) and B.1.351 (first in South Africa) and P2 variants (from Brazil).
- However, some labs flagged the growing presence of variants identified in India that were clubbed into a family of inter-related variants called the [double mutant variant B.1.617](#).
- However, there are many more mutations that contribute in different measures to the virus being able to adapt to human hosts.
- B.1.617 family was marked as an international 'variant of concern' after it was linked to a recent spike in cases in the UK. In March 2021, it was linked to a spurt in cases in Maharashtra.
- B.1.1.7 variant (marked by increased infectivity) is more prevalent in many northern and central Indian States in contrast to southern ones.

### **Uses of Genome Sequencing**

- Beyond identifying patterns, genome sequencing is used to understand the role of certain mutations in increasing the virus's infectivity.
- Some mutations have also been linked to immune escape, or the virus's ability to evade antibodies, and this has consequences for vaccines.
- Labs across the world have been studying if the vaccines developed so far are effective against such mutant strains of the virus.
- In general, the antibodies generated after vaccination were able to neutralise variants. However, there were fewer antibodies produced against the South African, Brazil and the 'double mutant' variant.

### **Indian SARS-CoV-2 Genomic Consortia**

- It is a group of 10 national laboratories that is tasked with flagging the presence of COVID-19 variants that were known to have spiked transmission internationally.
- It has also been tasked with checking whether certain combinations of mutations were becoming more widespread in India.
- The National Centre for Disease Control (NCDC) under the MoHFW was tasked with coordinating collection of samples from the States as well correlating disease with the mutations.

### **SUTRA Model**

- Scientists working on the SUTRA model have rejected media reports claiming that they had cautioned the Government regarding the second wave of the corona pandemic in March 2021.
- They said that the mathematical models used to forecast the surge of coronavirus cases couldn't predict the trajectory of the second wave as the virus dynamics and its transmissibility changed a lot over time.
- The government-backed **SUTRA** (Susceptible, Undetected, Tested (positive), and Removed Approach) model was used by IITs of Kanpur and Hyderabad to predict the COVID graph in India.
- It uses three main parameters to predict the course of the pandemic.



1. Beta or contact rate measures how many people an infected person infects per day. It is related to the Ro value.
    - Ro value is the number of people an infected person spreads the virus to over the course of their infection.
  2. 'Reach' parameter is a measure of the exposure level of the population to the pandemic.
  3. 'Epsilon' parameter is the ratio of detected and undetected cases.
- The model relied on a serosurvey conducted by the Indian Council of Medical Research (ICMR).

### ***Nodavac-R***

- Nodavac-R is the first indigenous vaccine for fish developed by the Central Institute of Brackish water Aquaculture (CIBA) in Chennai.
- This is a safe and efficacious vaccine for viral nervous necrosis (VNN) affecting many species of fishes.
- Red-spotted grouper nervous necrosis virus (RGNNV) is the only genotype prevalent in India and most other tropical countries.
- Nodavac-R, which could be injected to fingerlings, can be used in all species susceptible to VNN such as milkfish, mangrove red snapper etc.
- It would prevent VNN in fish hatcheries and bring down the incidence of VNN in grow-out farms.

### **Viral Nervous Necrosis**

- Viral nervous necrosis (VNN) is an acute and serious viral disease caused by Betanodavirus or Nervous Necrosis Virus (NNV).
- Formerly known as Viral Encephalopathy and Retinopathy, VNN affects many marine, brackishwater and freshwater fishes resulting in 100% mortality in larval and early juvenile stages.
- VNN causes necrosis and vacuolation of the brain, spinal cord, and eyes, which leads to abnormal swimming behavior, and ultimately death.
- Infected adults remain as carriers and transmit the virus to offspring through eggs.
- The practical way to control the disease and prevent vertical transmission is to vaccinate fingerlings and adult fish.

### ***Truenat KFD Point of Care Test***

- The microchip-based Truenat KFD Point of Care Test (PoCT) has been found to be highly sensitive in the rapid diagnosis of Kyasanur forest disease (KFD), also known as monkey fever.
- This test, which was developed by ICMR-National Institute of Virology (ICMR-NIV), will be useful in quick patient management and controlling further spread of the virus.
- It includes a portable battery-operated Polymerase Chain Reaction (PCR) analyser, which is a universal cartridge-based sample pre-treatment kit and nucleic acid extraction device.

### **Kyasanur Forest Disease**

- This disease was first identified in Kyasanur forest of Shimoga district, Karnataka during an investigation of monkey mortalities in 1957.
- It is caused by Kyasanur Forest Disease (KFD) virus, which primarily affects humans and monkeys.
- **Transmission** - In nature, the virus is maintained mainly in hard ticks, monkeys, rodents and birds.
- It is transmitted via the bite of Haemaphysalis ticks and contact with carcasses of dead monkeys.
- **Symptoms** - The disease causes chills, frontal headache, body ache, and high fever for 5 to 12 days with a case fatality rate of 3 to 5%.
- **Severity** - Since its identification in 1957 and up to 2012, several cases and outbreaks have been reported every year, especially in five districts of Karnataka with average cases of about 400 to 500 per year.



- After 2012, the KFD has also been reported from adjoining states - Tamil Nadu, Kerala and Maharashtra. Eventually, KFD emerged as a grave public health problem spreading through the entire Western Ghats.
- To know more about Kyasanur Forest Disease (KFD), [click here](#).

### **Protein-Antibody Conjugates**

- The researchers from University of Massachusetts, in the U.S. have designed nanoparticles called Protein–Antibody Conjugates (PACs).
- The PACs combines two different approaches that can be used for targeted drug delivery to treat diseases. They are,
  1. **Biologics**, where the idea is to target a defective protein in the system by delivering proteins to it.
  2. **Antibody–drug conjugates** - Drug molecules can be attached to the antibody, forming drug–antibody conjugates.
- PACs have a protein attached to the antibody that can precisely deliver drugs to specific cells. This could have an impact on incurable diseases.
- PACs can be used to treat undruggable cases, because with proteins we can design drug molecules that will bind to the target.

### **WHO BioHub**

- The World Health Organization (WHO) will establish the first BioHub Facility in Spiez, Switzerland.
- The BioHub will allow rapid sharing of pathogens between labs and partners to facilitate a better analysis and preparedness against them.
- It will also help in safe reception, sequencing, storage and preparation of biological materials for distribution to other labs.
- It will enable member states to share biological materials with and via the BioHub under pre-agreed conditions and regulations.
- **Significance** - The move will help contribute to the establishment of an international exchange system for SARS-CoV-2 and other emerging pathogens, to assess risks and launch countermeasures.
- This move will ensure timeliness and predictability in response activities.

## **21. INDEX AND REPORT**

### **Global Methane Assessment Report**

- The “Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions” report was released by the Climate and Clean Air Coalition and the United Nations Environment Programme (UNEP).
- The report has said that human-caused methane emissions must be cut by 45% to avoid the worst effects of climate change. Such a cut would,
  1. Prevent a rise in global warming by up to 0.3 degrees Celsius by 2045.
  2. Prevent 260,000 premature deaths, 775,000 asthma-related hospital visits annually, as well as 25 million tonnes of crop losses.
- Human-caused methane emissions are increasing faster currently than at any other time since record keeping began in the 1980s. Methane in the atmosphere reached record levels in 2020.
- The report noted that the most human-caused methane emissions came from three sectors - Fossil fuels, waste and agriculture.

### **Actions to be taken**

- **Fossil fuels Sector** - Oil and gas extraction, processing and distribution accounted for 23% of methane emissions in the fossil fuel sector. Coal mining accounted for 12% of emissions.

- Up to 80% of measures in the oil and gas industry could be implemented at negative or low cost. About 60% of methane cuts in this sector could make money as reducing leaks would make more gas available for sale.
- **Waste Sector** - Landfills and wastewater made up about 20% of emissions in the waste sector.
- This sector could cut its methane emissions by improving the disposal of sewage around the world.
- **Agricultural Sector** - Livestock emissions from manure and enteric fermentation constituted for 32% and rice cultivation 8% of emissions.
- The mitigation potential varied between countries and regions.
  1. Europe had the greatest potential to curb methane emissions from farming, fossil fuel operations and waste management.
  2. India had the greatest potential to reduce methane emissions in the waste sector.
  3. China's mitigation potential was best in coal production and livestock, while Africa's was in livestock, followed by oil and gas.
- The report said that three behavioural changes could reduce methane emissions by 65-80 million tonnes per year over the next few decades,
  1. Reducing food waste and loss,
  2. Improving livestock management and
  3. Adopting healthy diets (vegetarian or with a lower meat and dairy content).

### **Protected Planet Report 2020**

- Protected Planet Report 2020 was released by the UN Environment Programme-World Conservation Monitoring Centre (UNEP-WCMC) and the International Union for the Conservation of Nature (IUCN).
- With the support of the National Geographic Society, this **biennial** publication assesses the state of protected and conserved areas.
- This report said that as many as 82% of countries and territories increased their share of protected area and coverage of other effective area-based conservation measures (OECM) since 2010.
- [OECM are a conservation designation for areas that are achieving the effective in-situ conservation of biodiversity outside of protected areas.]
- The 2020 report underlined the progress the world has made toward the ambitious goals agreed by countries in 2010 at the UN Convention on Biological Diversity, known as Aichi Biodiversity Target 11.
- [Aichi Biodiversity Target 11 includes a set of 20 targets of the United Nations Convention on Biological Diversity.
- The targets include aim to conserve 17% of land and inland water ecosystems and 10% of its coastal waters and oceans by 2020.]
- **Findings** - Since 2010, over 21 million sq. kms has been placed within protected and conserved areas, which is 42% of the total area within protected and conserved areas.
- On an average, 62.6% of key biodiversity areas (KBA) either fully or partially overlap with protected areas and OECMs.
- [KBAs are sites that contribute significantly to the global persistence of biodiversity, in terrestrial, freshwater and marine ecosystems.]
- The average percentage of each KBA within protected areas and OECMs is 43.2% for terrestrial; 42.2% for inland water and 44.2% for marine (within national waters).

### **Renewable Energy Country Attractiveness Index**

- Ernst & Young has released the 57th Renewable Energy Country Attractiveness Index (EY RECAI 57). It is a biannual report released since 2003.
- It ranks the world's top 40 countries on the attractiveness of their renewable energy investment and deployment opportunities.



- In the RECAI 57, the US and China are in the top two spots.
  - **The US** retains the top position as it reaccepted the Paris Accord, decided to cut greenhouse gas (GHG) levels by 50-52% as early as 2030 and achieve 100% carbon free power by 2035.
  - **China** maintains the second position by adding 72.4GW of new wind power in 2020, as developers rushed to beat an onshore wind subsidy cut.
- **India** has moved up to 3<sup>rd</sup> spot from 4<sup>th</sup> spot (in EY RECAI 56) owing to an exceptional performance on the solar photovoltaic (PV) front.
- The index has ranked India as the most attractive destination for solar PV investment and deployment.
- India's solar sector would grow substantially post the pandemic, with generation from solar PV forecast to outdo coal before 2040.
- The drastic change has been led by the government's policy ambitions, which have led solar PV to be the most cost-competitive source of power in the region.
- In 2020, global renewable energy capacity investments **grew 2%** to \$303.5 billion, the second-highest annual figure recorded to date.
- However, the EY RECAI 57 estimated that future development to achieve net zero will require a further investment of \$5.2 trillion and highlighted the role of institutional investors in financing the energy transition.
- Environment, sustainability and governance (ESG) goals are increasingly being prioritised on the investor agenda while institutional investors' interest in renewables continues to grow.

### **World Bank Report on Remittances**

- Remittance is a sum of money sent by someone working abroad to his or her family back in the home country.
- The World Bank has released a report on remittance flows, named "Migration and Development Brief".
- **Remittance inflow** - In 2020, India received over USD83 billion in remittances a drop of just 0.2% from 2019 (USD83.3 billion).
- India's remittances in 2020 decline due to a 17% drop in remittances from the UAE, which offset resilient flows from the other host countries.
- India is followed by China (USD 59.5 billion), Mexico (USD42.8 billion), the Philippines (USD34.9 billion), Egypt (USD29.6 billion), etc.
- **Remittance outflow** - Maximum from the US (USD68 billion), followed by UAE, Saudi Arabia, Switzerland, Germany and China.
- Remittances outflow from India in 2020 was USD7 billion, against USD7.5 billion in 2019, according to the World Bank.
- **Significance** - Remittance are a source of external financing for low- and middle-income countries. Also, they are helping to meet families' increased need for livelihood support.

### **Asian Development Outlook 2021**

- The Asian Development Outlook 2021 is a report released by the Asian Development Bank (ADB).
- The report said the 45 economies that excluded Japan, Australia and New Zealand, were to grow 7.3% this year, supported by a healthy global recovery and early progress on COVID-19 vaccines.
- The pandemic was the biggest threat to Asia and the Pacific (including India), mainly due to delay in vaccine rollouts or major new outbreaks.
- Average inflation in the region was forecast to fall to 2.3% in 2021, from 2.8% in 2020.
- While east and south Asia forecast were to see the strongest growth, the central and Southeast Asia and the Pacific were to see more moderate growth.
- **India** - The report said that the ongoing 'second wave' COVID-19 pandemic could put India's economic recovery at risk.





- It said that excluding the second wave, India's economy was expected to grow 11% in fiscal year 2021-2022, amid a strong vaccine drive.
- India's GDP was expected to expand 7% in 2022.

### ***Purchasing Managers' Index***

- The seasonally adjusted IHS Markit India Manufacturing Purchasing Managers' Index (PMI) was at 55.5 in April 2022, little changed from March's reading of 55.4.
- In PMI parlance, a print above 50 means expansion while a score below 50 denotes contraction.
- It is a survey-based measure that questions people about changes in their perception about key business variables as compared with the previous month.
- **Purpose** - To provide information about current and future business conditions to company decision makers, analysts, and investors.
- To know more about Purchasing Managers' Index, [click here](#).

### ***Air Quality Index***

- Delhi's Air Quality Index (AQI) deteriorated from 'moderate' to 'poor' and 'very poor', says the Central Pollution Control Board (CPCB).
- Delhi's air typically worsens in October-November and improves by March-April.
- AQI is calculated based on the Union Ministry of Earth Sciences' System of Air Quality and Weather Forecasting and Research (SAFAR) system.
- To know more about Air Quality Index, [click here](#).

### ***Elephant Casualties on Train Tracks***

- According to the Project Elephant Division of the Environment Ministry, a total of 186 elephants were killed after being hit by trains across India between 2009-10 and 2020-21.
- Assam (62) accounted for the highest number of elephant casualties, followed by West Bengal (57), and Odisha (27).
- Trains claimed the highest number of pachyderms in **2012-13**, when 27 elephants were killed in 10 States.
- **Measures taken** - A Permanent Coordination Committee was constituted between the Railways Ministry (Railway Board) and the Environment Ministry for preventing elephant deaths in train accidents.
- The Ministry cleared vegetation along railway tracks to enable clear view for loco pilots, signage boards at suitable points to alert loco pilots about elephant presence on the track.
- Moderating slopes of elevated sections of railway tracks, setting up underpass/overpass for safe passage of elephants, regulation of train speed from sunset to sunrise in vulnerable stretches.
- Regular patrolling of vulnerable stretches of railway tracks by frontline staff of the Forest Department and wildlife watchers.
- Environment Ministry released funds to protect elephants for the elephant range States under Centrally Sponsored Schemes of Project Elephant.



## PRELIMS PRACTICE QUESTIONS

### 1. Consider the following statements with respect to *Mucormycosis*

1. It is a bacterial infection found in Covid patients that has high mortality rate of 80%.
2. Patients those who require oxygen therapy during Covid-19 illness are at a much higher risk of mucormycosis which causes facial pain, headaches, and pain around the eyes.

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) With respect to *Oxygen Concentrators*, sometimes seen in the news recently, consider the following statements:

1. They are simple devices which contains fixed amount of pressurized oxygen to help individuals access it through a mask or cannula.
2. Oxygen concentrators can work 24 x 7 without refilling.
3. The device can be easily used on our own when oxygen levels are falling, without a medical guidance.

Which of the statement(s) given above is/are correct?

- a. 1 only
- b. 2 only
- c. 1 and 3 only
- d. 2 and 3 only

### 3) What is the following purpose of *NASA's GRACE Mission*?

- a. Mapping heat variation in Sun's outer layer
- b. Estimates of glacier loss and groundwater pumping.
- c. Measuring climatic changes due to anthropogenic activities.
- d. Mapping variations in the Earth's gravity

### 4) *PRAYAAS Initiative* was launched recently by which of the following organizations?

- a. Indian Council of Medical Research
- b. Indian Council for Cultural Relations
- c. Employees' Provident Fund Organization
- d. Tribal Cooperative Marketing Development Federation of India

### 5) United States of America (USA) has recently approved a major solar energy project in California desert region. Which of the following deserts are *not* a part of California Deserts?

1. Mojave Desert
2. Sonoran Desert
3. Colorado Desert
4. Chihuahua Desert



5. The Great Basin Desert

Select the correct answer using the codes given below:

- a. 2 and 4 only
- b. 3 and 5 only
- c. 1, 2 and 5 only
- d. None of the above

6) Which of the following statement(s) is/ are incorrect with respect to *Putola Nach* ?

- 1. It is a Folk music and Dance festival celebrated across North-Eastern States.
- 2. In Lower Assam, the form is known as Putala-Bhoariya and influenced by the popular folk form Bhoariya.

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

7) With respect to *Kabasura Kudineer*, sometimes seen in the news recently, consider the following statements:

- 1. It is a poly herbal formulation developed to manage malaria by the Central Council for Research in Ayurvedic Sciences (CCRAS), Ministry of Ayush.
- 2. It is a classical siddha medicine recommended by the Ministry of AYUSH for the benefit of the vast majority of out of hospital COVID patients.

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) Which one of the following best describes the term "*Rogue Planet*"?

- a. A Planet orbiting two stars
- b. A Planet that does not orbit a star
- c. A Planet that has unpredictable orbits
- d. A Planet that disturbs the orbit of its neighbour in a star system

9) With respect to *2-deoxy-D-glucose (2-DG)*, sometimes seen in the news recently, consider the following statements:

- 1. It is an anti-COVID drug developed by Central Council for Research in Ayurvedic Sciences (CCRAS).
- 2. The drug comes in powder form in sachet, which is taken orally by dissolving it in water.

Which of the statement(s) given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2



d. Neither 1 nor 2

**10) Consider the following statements with respect to Post Devolution Revenue Deficit (PDRD) Grants**

1. It is provided by the Union government to the States under Article 275 of the Constitution.
2. The eligibility of States to receive this grant will be decided by Finance Commission.
3. The grant will be calculated based on the gap between assessment of revenue and expenditure of the State.

Which of the statement(s) given above is/are correct?

- a. 1 and 2 only
- b. 1 and 3 only
- c. 2 and 3 only
- d. 1, 2 and 3

**11) Which of the following organizations have released Conflict and Conservation Report?**

- a. UN- Environment Program (UNEP)
- b. World Wide Fund for Nature (WWF)
- c. International Union for Conservation of Nature (IUCN)
- d. Wild Life Conservation Society (WCS)

**12) Consider the following statements with respect to Sustaining Arctic Observing Network (SAON)**

1. It was initiated by the International Arctic Science Committee (IASC) and the Arctic Council's Arctic Monitoring and Assessment Programme (AMAP) in 2007.
2. The Chair and Vice Chair of the Sustaining Arctic Observing Network (SAON) will be appointed by the Arctic Council.

Which of the statement(s) given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

**13) Which of the following statement(s) is/ are correct with respect to Social Stock Exchange (SSE)**

1. It aims to help social and voluntary organisations which work for social causes to raise capital as equity or debt or a unit of mutual fund.
2. It works under Securities and Exchange Board of India (SEBI).
3. Only Not for Profit Organisation (NPO) will be eligible to tap the SSE in India.

Select the correct answer using the codes given below:

- a. 1 only
- b. 1 and 2 only
- c. 1 and 3 only
- d. 2 and 3 only



**14) Consider the following statements with respect to SWAMIH Investment Fund**

1. It is an alternative investment fund to provide priority debt financing for the completion of stalled housing projects.
2. SBICAP Ventures, an arm of SBI Capital Markets, is entrusted by the government to manage this fund.

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

**15) Consider the following statements with respect to Red-eared Slider Turtle**

1. It is an invasive species native to the United States of America (USA) and Northern Mexico.
2. Due to its small size, easy maintenance, and relatively low cost, they are widely kept as pets.

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) Migration and Development Brief is released by which of the following organizations?**

- a. NITI Aayog
- b. World Bank
- c. BRICS Employment Working Group (EWG)
- d. UN-Development Program (UNDP)

**17) With respect to Judicial Impact Assessment (JIA) in India, consider the following statements:**

1. It is a methodology to calculate the workload change that the judiciary has to bear due to procedural or substantive legislation changes.
2. The need for Judicial Impact Assessment in India was first considered in the Salem Advocates Bar Association Vs Union of India case in 2005.
3. Judicial Impact Assessment (JIA) is a unique Indian innovation in the field of Judiciary procedures.

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

**18) Which of the following is the correct colour identification of Oxygen Cylinders intended for medical use in India?**

- a. Black coloured body with white neck
- b. White coloured body with black neck
- c. Brown coloured body with grey neck

d. Grey coloured body with white neck

**19) Taiwan Strait, which separates the coast of China from Island of Taiwan, connects which of the following?**

- a. South China Sea and East Sea
- b. Yellow Sea and East China Sea
- c. Sea of Japan and East China Sea
- d. East China Sea and South China Sea

**20) Consider the following statements with respect to Article 311**

- 1. It puts certain restrictions on the absolute power of the President or Governor for dismissal, removal or reduction in rank of an officer.
- 2. The protective safeguards given under Article 311 are applicable to both civil servants and defence personnel.

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

**21) Sulawesi Caves recently found in news is known for which of the following?**

- a. Active Volcanoes
- b. Sumatran Orangutan
- c. Oldest cave art
- d. Ancient rock edicts

**22) With respect to UNESCO's World Heritage Sites, consider the following statements:**

- 1. Only countries that have signed the World Heritage Convention can submit nomination proposals for World Heritage Sites.
- 2. To be included on the World Heritage List, a site must be included on the State Party's Tentative List, at least one year prior to the nomination.
- 3. UNESCO's World Heritage sites will be selected on the basis of satisfying six cultural and four natural criteria.

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

**23) Which of the following organisations is responsible for Naming tropical Cyclones formed over Bay of Bengal and Arabian Sea?**

- a. World Meteorological Organization
- b. Ministry of Earth sciences
- c. Indian Institute of Tropical Meteorology
- d. Regional Specialized Meteorological Centre (RSMC)



**24) Consider the following statements with respect to *Creation of New District***

1. The power to create new districts or alter or abolish existing districts rests only with the State governments.
2. A state can create a district only by passing a law in the state assembly.

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

**25) Which of the following statement(s) is/ are correct with respect to *MLA-LADS***

1. MLAs do not receive any money under this scheme, the government transfers it directly to the respective local authorities.
2. The legislators can only recommend works in their constituencies based on a set of guidelines.
3. The funds under this scheme can be used both in both rural and urban areas of a state.

Select the correct answer using the codes given below:

- a. 1 and 2 only
- b. 1 and 3 only
- c. 2 and 3 only
- d. 1, 2 and 3

**26) Which of the following pairs are correctly matched with respect to *Maratha Military Architecture in Maharashtra?***

- | Place       | Significance                   |
|-------------|--------------------------------|
| 1. Shivneri | - Coronation of Maratha king   |
| 2. Raigad   | - First fort of Maratha Empire |
| 3. Torna    | - Birth Place of Shivaji       |

Select the correct answer using the codes given below:

- a. 1 only
- b. 1 and 3 only
- c. 2 and 3 only
- d. None of the above

**27) Which of the following statement(s) is/ are correct with respect to *White Fungus***

1. It can be caused by the unsterile use of oxygen cylinders or the overuse of steroids.
2. It predominantly attacks body parts such as lungs, skin, nail, brain, kidney, mouth etc.
3. It is treated with antifungals and white fungal infections may eventually require surgery.

Select the correct answer using the codes given below:

- a. 1 and 2 only
- b. 1 and 3 only
- c. 2 and 3 only
- d. 1, 2 and 3



**28) Consider the following statements with respect to *BioHub Initiative***

1. It is an initiative of World Health Organization (WHO) to enhance the rapid sharing of viruses and other pathogens between laboratories and partners globally.
2. The first WHO BioHub Facility will be established in Spiez, Switzerland.

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

**29) *Mekedatu dispute*, often seen in the news, is a dispute between?**

- a. Karnataka & Goa
- b. Tamil Nadu & Karnataka
- c. Puducherry & Tamil Nadu
- d. Andhra Pradesh & Telangana

**30) Consider the following statements with respect to *Sudano Sahelian Zone (SSZ)***

1. It is one of the Safe Climatic Spaces (SCS) on earth where production of food crops and livestock is high.
2. This region is the wealthiest region in African continent due to abundant natural resources.

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) Who among the following are considered as the "*Trinity of Carnatic Music*"?**

1. Shyama Sastry
2. Muthu Thandavar
3. Thyagaraja Swamy
4. Muthuswami Dikshitar
5. Thirugnana Sambandar

Select the correct answer using the codes given below:

- a. 1, 2 and 3
- b. 2, 4 and 5
- c. 1, 3 and 4
- d. 3, 4 and 5

**32) Consider the following statements with respect to *Judicial Recusal***

1. It is the act of abstaining from legal proceeding due to a conflict of interest of the presiding court official or administrative officer.
2. Grounds for recusal includes if a judge is biased in favour of one party, or against another, or that a reasonable objective observer would think he might be.





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

**33) Volatiles Investigating Polar Exploration Rover (VIPER), a lunar rover is developed by which of the following Space Agencies?**

- a. Indian Space Research Organisation (ISRO)
- b. Japan Aerospace Exploration Agency (JAXA)
- c. European Space Agency (ESA)
- d. National Aeronautics and Space Administration (NASA)

**34) Which of the statements given below regarding GST Council is *incorrect*?**

- a. One-half of the total number of members of GSTC form quorum in meetings of GSTC
- b. Decision in GSTC are taken by a majority of not less than three-fourth of weighted votes cast
- c. Centre has one-third weightage of the total votes cast and all the states taken together have two-third of weightage of the total votes cast
- d. None of the above

**35) Consider the following statements with respect to YUVA- Prime Minister's Scheme for Mentoring Young Authors**

- 1. It is an author mentorship programme to train young and budding authors' below 30 years of age.
- 2. It was launched by the Department of Higher Education, Ministry of Education.
- 3. The National Book Trust, India is the implementing agency and responsible for the phase-wise execution of the Scheme.

Which of the statement(s) given above is/are correct?

- a. 3 only
- b. 1 and 2 only
- c. 1, 2 and 3
- d. None of the above

**36) Thitu or Pag-asa Island, sometimes seen in the news recently, is located in which of the following regions?**

- a. Yellow Sea
- b. Arabian Sea
- c. South China Sea
- d. Mediterranean Sea

**37) Consider the following statements with respect to 17+1 Initiative**

- 1. It aims to expand cooperation between Central Asian Union (CAU) and the ASEAN member countries.
- 2. It focuses on infrastructure projects such as bridges, motorways, railway lines and modernisation of ports in the member states.



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) Golden Visa System, sometimes seen in the news recently, is being implemented by which of the following countries?**

- a. France
- b. Australia
- c. Saudi Arabia
- d. United Arab Emirates

**39) Consider the following statements with respect to Reclining Buddha Statue**

- 1. The reclining Buddha statue represents Buddha during his last illness, about to enter Maha Parinirvana.
- 2. The Reclining Buddha was first depicted in Mathura school of art around 30 BC.

Which of the statement(s) given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

**40) Consider the following statements with respect to Begum Sultan Jahan**

- 1. She was the fourth female ruler of Bhopal and last Begum of Bhopal.
- 2. She was the first female Muslim Chancellor of Banaras Hindu University.

Which of the statement(s) given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

**41) Which of the following statement(s) is/ are incorrect with respect to Diplomatic Immunity**

- 1. It is a privilege of exemption from certain laws and taxes granted to diplomats by the country in which they are posted.
- 2. The diplomats posted in an embassy get immunity, along with his or her family members.

Select the correct answer using the codes given below:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2



**42) Which of the following statement(s) is/ are incorrect with respect to Network for Greening the Financial System (NGFS)?**

1. It is launched in Paris One Planet Summit in 2017 which includes central banks and financial supervisors.
2. Reserve Bank of India is a member of NGFS to support the transition towards a sustainable economy.

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 Polar Wandering**

1. It means migration of the magnetic poles over Earth's surface through geologic time.
2. True polar wandering represents the shift in the geographical poles relative to Earth's surface, after accounting for the motion of the tectonic plates.

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 Biomedical Waste (Management and Handling) Rules**

1. In State level Chief Secretaries of the States/UTs need to oversee compliance of the rules in every health care facility.
2. Guidelines for biomedical waste management generated from COVID-19 under the rules, categorise expired medicines under Red colour code which needs to be disposed immediately.

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

**45) Consider the following statements with respect to Model Insurance Villages**

1. It aims to offer comprehensive insurance protection to all the major insurable risks that villagers are exposed to.
2. It is conceptualised and implemented by Life Insurance Corporation of India.

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



**46) Hakki Pikki is a tribal community inhabited in which of the following states?**

- a. Goa
- b. Manipur
- c. Karnataka
- d. Lakshadweep Islands

**47) With respect to Community Transmission, sometimes seen in the news recently, consider the following statements:**

- 1. Community Transmission is said to be happened when new cases of COVID-19 in the last 14 days can't be traced to those who have an international travel history or when cases can't be linked to specific cluster.
- 2. The community transmission tag will be designated to a country by the World Health Organization (WHO).

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 statement(s) is/ are incorrect with respect to Liquid Medical Oxygen**

- 1. It restores tissue oxygen tension by increasing the oxygen availability.
- 2. Drug Prices Control Order, 2013 has placed LMO under the National List of Essential Medicines (NLEM).

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

**49) Consider the following statements with respect to Types of Lending Rates**

- 1. In the event of inflation, central banks increase repo rate as this acts as a disincentive for banks to borrow from the central bank.
- 2. When deposit rates rise, it indicates the banks are likely to hike MCLR and lending rates are set to go up.

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

**50) Consider the following statements with respect to Overseas Citizens of India (OCI)**

- 1. They are people of Indian origin but hold foreign passports.
- 2. They are treated at par with NRIs in financial, economic and educational fields including acquisition of agricultural properties.
- 3. Foreign nationals can also apply for OCI in India while on Tourist and Missionary Visa.

Which of the statement(s) given above is/are correct?



- a. 1 only
- b. 1 and 2 only
- c. 1 and 3 only
- d. None of the above

### Answers

1. b

#### **Mucormycosis**

- Mucormycosis is a fungal infection that has a high mortality rate of 50 per cent.
- It is caused by a fungus called Mucorales, which is usually not known to affect humans.
- Increasing number of Covid-19 patients have been developing this infection while still at the hospital or after discharge.
- Some of the common symptoms of the infection include sinusitis, blackish nasal discharge, facial pain, headaches, and pain around the eyes.
- The infection often necessitates urgent surgery to remove affected parts above the neck.
- Both symptomatic and asymptomatic patients with Covid-19 may be at risk.
- Before the pandemic, patients with uncontrolled diabetes were at a higher risk of mucormycosis because the high blood sugar levels made it easier for the fungi to grow and survive, and their weaker immune systems offered less protection against the infection.

2. b

- Oxygen level is measured by oxygen saturation, known briefly as SpO<sub>2</sub>.
- This is a measure of the amount of oxygen-carrying haemoglobin in the blood.
- A healthy individual with normal lungs, will have an arterial oxygen saturation of 95% – 100%.
- According to a WHO training manual on pulse oximetry, if the oxygen saturation is 94% or lower, the patient needs to be treated quickly.
- A saturation of less than 90% is a clinical emergency.

#### **Oxygen Concentrators**

- Atmospheric air has roughly 78% nitrogen and 21% oxygen.
- Oxygen concentrators are simple devices which **take in ambient air** and increase the oxygen concentration, by filtering out and throwing away nitrogen.
- These Oxygen concentrators work the same way in supplying oxygen needed by the body such as oxygen tanks or cylinders, with the use of a cannula, oxygen masks or nasal tubes.
- The difference is that, **while the cylinders need to be refilled, the Oxygen Concentrators can work 24 x 7.**
- Using oxygen concentrators without medical guidance can be very harmful.

3. d

#### **Gravity Recovery and Climate Experiment (GRACE) mission**

- It was selected as the second mission under the NASA Earth System Science Pathfinder (ESSP) Program in May 1997.
- It is a joint partnership between the National Aeronautics and Space Administration (NASA) in the United States and Deutsche Forschungsanstalt für Luft und Raumfahrt (DLR) in Germany.
- It was aimed at accurately mapping variations in the Earth's gravity field over its 5-year lifetime.
- Its objective was to map the Earth's gravity fields by making accurate measurements of the distance between the two satellites, using GPS and a microwave ranging system.



- The gravity variations that GRACE were:
  1. Changes due to surface and deep currents in the ocean;
  2. Runoff and ground water storage on land masses;
  3. Exchanges between ice sheets or glaciers and the oceans; and
  4. Variations of mass within the Earth.

4. c

- The Employees' Provident Fund Organisation (EPFO) sent the pension payment orders to the retiring employees under the Employees' Pension Scheme, 1995 through the "PRAYAAS" initiative.

#### **PRAYAAS Scheme**

- PRAYAAS is initiative of the EPFO to disburse pension payment order on the very day of retirement/superannuation.

5. a

- *The US government has recently approved a major solar energy project in the California desert that will be capable of powering nearly 90,000 homes.*
- The 550 million dollar **Crimson Solar Project** will be sited on 2,000 acres of federal land west of Blythe, California.

The California desert region comprises three distinctive deserts

1. The Mojave Desert
  2. The Colorado Desert
  3. The Great Basin Desert
- The Mojave Desert, bounded by the Tehachapi Mountains to the northwest, the San Gabriel and San Bernardino Mountains on the south, and eastward to California's borders with Arizona and Nevada.
  - The Colorado Desert lies in the southeast corner of the state, between the Colorado River and the coastal ranges, and continues into Mexico and Arizona to the southeast.
  - The Great Basin Desert lies immediately to the east of the Sierra Nevada range and extends east to Nevada.

6. a

#### **Putola Nach**

- It is an ancient popular traditional folk theatrical performance of Assam.
- The string puppetry of Assam is called Putola Nach and is performed in three areas with distinct characteristics.
- The Putola Nach is also called Putola bhaona due to its ancient link (16th century) with bhaona theatre.
- Areas famous for Putola Nach were Barpeta-Nalbari in western Assam, Kalaigaon in northern Assam and Majuli "island" in eastern Assam.
- In Lower Assam, the form is known as Putala-Bhoariya and influenced by the popular folk form Bhoariya.
- In Kalaigaon of Darrang district, the puppeteers use Bangla, Assamese and Karbi songs in their performances and borrow largely from the mobile theatre of Assam (Bhraymaman).
- It is seen that the puppets of different areas of Assam are divided into khel-dhemalir Putola (playfull puppets), dhormo khongkrantiyo Putola (religious puppets) and nrittor Putola (dancing puppets) etc.
- The scholar critics pull the history of Putola Naach (puppetry) to the society of the Stone Age people of pre-historic era.
- It mentioned in the manuscript of Kothagurucharitra that on the twenty second day after the birth of Sankardev, his father Kusumbor Bhuya arranged Saya Putola performance.



7. b

- In a concerted response to the second surge of COVID-19 infection in the country, the Ministry of Ayush is launching a massive nationwide campaign recently to distribute its proven poly herbal Ayurvedic drugs AYUSH 64 and **Sidha drug Kabasura Kudineer**.
- **Kabasura Kudineer is included in the Guidelines for Siddha Practitioners for COVID 19 by the AYUSH Ministry.**

#### **Kabasura kudineer**

- It is an herbal concoction, comprising dry ingredients of ginger, pippali, clove, cirukancori root, mulli root, kadukkai, ajwain and many other herbs.
- The ingredients are powdered and mixed with water, then boiled to make a decoction of one-fourth of its initial volume.

#### **AYUSH-64**

- It is an **Ayurvedic formulation** which was developed by the Central Council for Research in Ayurvedic Sciences (CCRAS), the apex body for research in Ayurveda under the Ministry of Ayush, in 1980 **for management of Malaria**.
- The drug can be useful for the treatment of asymptomatic, mild to moderate COVID-19 infection cases.

8. b

#### **Rogue Planet**

- A rogue planet (also termed an interstellar, nomad, free-floating, unbound, orphan, wandering, starless, or sunless planet) is a planetary-mass object that does not orbit a star directly.
- These interstellar nomads or starless planets were first sighted in 1998.
- OTS 44 with over 11 times Jupiter's mass was the first rogue planet to be discovered.
- It is 554 light years away.

9. b

- *Drugs Controller General of India (DCGI) has recently approved an anti-COVID drug developed by DRDO for emergency use.*

#### **2-deoxy-D-glucose (2-DG)**

- It is an anti-COVID-19 therapeutic application developed by Institute of Nuclear Medicine and Allied Sciences (INMAS), a lab of Defence Research and Development Organisation (DRDO), in collaboration with Dr Reddy's Laboratories (DRL), Hyderabad.
- Clinical trial results have shown that this molecule helps in faster recovery of hospitalised patients and reduces supplemental oxygen dependence.
- The drug will be of immense benefit to the people suffering from COVID-19.
- The **drug comes in powder form** in sachet, which is taken orally by dissolving it in water.
- It accumulates in the virus infected cells and prevents virus growth by stopping viral synthesis and energy production.
- Its selective accumulation in virally infected cells makes this drug unique.

10. d

#### **Post Devolution Revenue Deficit (PDRD) Grants**

- The grants are released as per the recommendations of the Finance Commission in monthly instalments to meet the gap in Revenue Accounts of the States post-devolution (of the divisible tax pool of the Centre).
- The 15th Finance Commission has recommended post devolution revenue deficit grants amounting to about Rs. 3 trillion over the five-year period ending FY26.
- The number of states qualifying for the revenue deficit grants decreases from 17 in FY22, the first year of the award period to 6 in FY26, the last year.



- Over the five-year period, Andhra Pradesh, Assam, Haryana, Himachal Pradesh, Karnataka, Kerala, Manipur, Meghalaya, Mizoram, Nagaland, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand and West Bengal are recommended to be provided with the deficit grants.
- The Ministry of Finance has accepted the recommendation.

**Article 275 of the Constitution**

- It provides for the payment of such sums as Parliament may by law provide as grants-in aid to such States as Parliament may determine to be in need of assistance.
- The grants are paid out of the Consolidated Fund of India in each year, and different sums may be fixed for different States.
- These grants are to be of the nature of capital and recurring sums as may be necessary.
- These aim to enable that State to meet the costs of such schemes of development as may be undertaken by it with the approval of the Government of India for the purpose of promoting the welfare of the Scheduled Tribes in that State or raising the level of administration of the Scheduled Areas there in to that of the administration of the rest of the areas of that State.
- Grants are primarily intended to correct Inter-State disparities in financial resources and to coordinate the maintenance and expansion of the welfare schemes of the State Governments on a uniform national level.

11. c

**Conflict and Conservation Report**

- It is released by International Union for Conservation of nature (IUCN) release a report titles.
- It focuses on the complex relationships between nature and armed conflict.
- Objective of the report us to help bring the importance of nature conservation into mainstream political and economic decision making.
- Major threats posed by the conflict are as follows
  1. Direct killing of wildlife for food
  2. Degradation of ecosystems
  3. Disruption of conservation efforts
- Key highlights of the report are as follows
  1. Armed conflicts were particularly prevalent in some of the world's more biodiverse regions
  2. Conflicts were less frequent within the boundaries of natural reserves and other protected areas
  3. Degradation of nature was associated with increased risk of conflict

12. a

**Sustaining Arctic Observing Network (SAON)**

- It is a joint activity of International Arctic Science Committee (IASC) and the Arctic Council.
- It was established with the purpose to support and strengthen the development of multinational engagement for sustained and coordinated pan-Arctic observing and data sharing systems.
- SAON was initiated by IASC and the Arctic Council's Arctic Monitoring and Assessment Programme (AMAP) in 2007.
- The SAON is now governed by a SAON Board, with the Arctic Council appointing the Chair and IASC appointing the Vice-Chair.
- The biennial Arctic Observing Summit is held in conjunction with the Arctic Science Summit Week (ASSW) and through SAON both IASC and the Arctic Council are contributing to the program.

13. b

**Social Stock Exchange (SSE)**

- Social enterprise can be defined as a non-loss; non-dividend paying company created and designed to address a social problem.





- It provides new and cheaper sources of financing for social welfare projects, while showcasing India's independence from foreign aid.
- SSE already exists in countries such as Singapore, UK, and Canada among others.
- These countries allow firms operating in sectors such as health, environment and transportation to raise risk capital.
- Recently a technical group on social stock exchanges (SSEs), constituted by SEBI has recommended that political and religious organisations, trade organisations as well as corporate foundations should not be allowed to raise funds through SSEs.
- Corporate foundations, political or religious organizations/ activities, professional or trade associations, infrastructure and housing companies (except affordable housing) will not be permitted on SSE.
- These recommendations were issued by the committee setup under the chairmanship of Harsh Bhanwala, former chairman of NABARD.
- The technical group report said both For Profit Enterprise (FPE) and Not for Profit Organisation (NPO) will be eligible to tap the SSE if they are able to show their primary goals are social intent and impact.
- The panel has recommended different modes of fund raising for NPOs and FPEs.
- For NPOs it has recommended fundraising through "equity, zero coupon zero principal bond, development impact bonds, social impact fund with 100 per cent grants-in grants out provision, and donations by investors through mutual funds".
- For FPEs it has recommended fundraising through equity, debt, development impact bonds, and social venture funds.

14. c

- *Union Minister for Finance & Corporate Affairs Smt. Nirmala Sitharaman has recently handed over possession to homebuyers virtually as Government of India's Special Window for Affordable & Mid-Income Housing (SWAMIH) completes its first residential project.*
- *The residential project - Rivali Park, located in suburban Mumbai, was the first housing project in India to have received funding under the SWAMIH Fund.*

#### **SWAMIH Fund**

- In order to give relief to homebuyers of stalled projects, a Special Window for Completion of Affordable and Mid-Income Housing (SWAMIH) investment fund was launched by Smt. Sitharaman in November 2019.
- The fund will provide last mile funding to the stressed affordable and middle-income housing projects in the country.
- The fund has been formed to complete construction of stalled, brownfield, RERA registered residential developments that are in the affordable housing / mid-income category, are networth positive and requires last mile funding to complete construction.
- It has a target corpus of INR 12,500cr with a greenshoe option of INR 12,500cr.
- The funding for stalled projects includes projects that have been declared as Non-Performing Assets (NPAs) or are pending proceedings before the National Company Law Tribunal under the Insolvency and Bankruptcy Code.
- **SBICAP Ventures**, an arm of SBI Capital Markets, is entrusted by the government to manage this Alternative Investment Fund (AIF).

15. c

- *A cute American turtle, popular as a pet, is threatening to invade the natural water bodies across the Northeast which is home to 21 of the 29 vulnerable native Indian species of freshwater turtles and tortoises.*

#### **Red-eared slider**

- The red-eared slider (*Trachemys scripta elegans*) derives its name from red stripes around the part where its ears would be and from its ability to slide quickly off any surface into the water.
- Native to the U.S. and northern Mexico, this turtle is an extremely popular pet due to its small size, easy maintenance, and relatively low cost.



- But on the flip side, they grow fast and virtually leaves nothing for the native species to eat.
- Since they are omnivores, they pose a threat to both native aquatic animals and plants.
- It is regarded as the most invasive species of turtles in the world.
- People who keep it as pets released them in natural water bodies after they outgrow an aquarium, tank or pool at home.
- Also, the red-eared slider is traded legally in India and the government should come up with regulations against keeping invasive as pets.
- Preventing this invasive species from Northeast India is crucial because the **Northeast is home to more than 72% of the turtle and tortoise species in the country**, all of them are very rare.

16. b

### **Migration and Development Brief**

- Recently, the World Bank has released the Migration and Development Brief which provides information regarding remittances received by various countries
- The report said India's remittances fell by just 0.2 per cent in 2020, with much of the decline due to a 17 per cent drop in remittances from the United Arab Emirates.
- India received over USD 83 billion in remittances in 2020 which is a drop of just 0.2 per cent from the previous year.
- Remittances outflow from India in 2020 was USD7 billion, against USD 7.5 billion in 2019

17. a

### **Judicial Impact Assessment**

- It is a methodology of calculating the workload change that the judiciary has to bear due to procedural or substantive law changes and then calculating the expected indicative costs for the same change.
- The USA undertakes the Judicial impact assessment exercise, although the developments are not shared except the results.

### **Background**

- The Supreme Court of India, for the first time, in Salem Advocates Bar Association (II) Vs Union of India case (2005), considered the question of the need for “Judicial Impact Assessment” in our country.
- The Supreme Court of India also directed the Central Government to examine the issue of Judicial Impact Assessment as done in USA.
- The Government of India, based on the direction of the Supreme Court, constituted a Task Force with Justice M. Jagannadha Rao as the chairman in 2008 to study the feasibility of Judicial Impact Assessment (JIA) in India.

18. a

- Any cylinder with any compressed gas shall ensure that the cylinder is painted with appropriate identification colours specified in IS:3933 for medical cylinders.
- According to the standards, Oxygen cylinders, intended for medical use, should be painted **Black throughout its body and white at the neck of the cylinder.**

19. d

- *China has recently accused the United States of threatening the peace and stability of the Taiwan Strait after a U.S. warship again sailed through the sensitive waterway that separates Taiwan from China.*

### **Taiwan Strait**

- It is a 180 km wide strait separating the island of Taiwan and continental Asia.
- The strait is currently part of the **South China Sea** and connects to the **East China Sea** to the north.



20. a

**Article 311**

- Article 311 (1) says that no government employee either of an all India service or a state government shall be dismissed or removed by an authority subordinate to the own that appointed him/her.
- Article 311 (2) says that no civil servant shall be dismissed or removed or reduced in rank except after an inquiry in which s/he has been informed of the charges and given a reasonable opportunity of being heard in respect of those charges.
- People Protected under Article 311 are the members of
  1. Civil service of the Union,
  2. All India Service, and
  3. Civil service of any State,
  4. People who hold a civil post under the Union or any State.
- The protective safeguards given under Article 311 are applicable only to civil servants, i.e. public officers, and they are not available to defence personnel.
- According to Article 310, except for the provisions provided by the Constitution, a civil servant of the Union works at the pleasure of the President and a civil servant under a State works at the pleasure of the Governor of that State (English doctrine of Pleasure), but this power of the Government is not absolute.
- Article 311 puts certain restrictions on the absolute power of the President or Governor for dismissal, removal or reduction in rank of an officer.

21. c

**Sulawesi Caves**

- It is a Pleistocene-era rock paintings dating back to 45,000-20,000 years ago.
- It is located in cave sites in southern Sulawesi, on the Indonesian island of Sulawesi.
- The limestone cave walls are adorned with hand stencils of red and mulberry tint, in addition to paintings of native mammals and human-animal hybrids.
- The artwork in the area includes what is believed to be the world's oldest hand stencil created by pressing the hand on a cave wall, and spraying wet red-mulberry pigments over it.
- A nearby cave features the world's oldest depiction of an animal, a warty pig painted on the wall 45,500 years ago.
- The cave art of Sulawesi is much older than the prehistoric cave art of Europe.

22. a

- Six sites, including the Ganga ghats in Varanasi, temples of Kancheepuram in Tamil Nadu and the Satpura Tiger Reserve in Madhya Pradesh, have been added to India's tentative list of UNESCO world heritage sites.
- The other three sites are the Maratha military architecture in Maharashtra, the Hire Bengal megalithic site in Karnataka and Bhedaghat-Lametaghat of Narmada Valley in Madhya Pradesh.

**UNESCO's World Heritage Site List**

**Tentative Lists**

- A Tentative List is an inventory of those properties which each State Party intends to consider for nomination to the World Heritage List.
- States Parties should submit Tentative Lists to the World Heritage Centre, at least one year prior to the submission of any nomination.
- Nominations to the World Heritage List will not be considered unless the nominated property has already been included on the State Party's Tentative List.
- Once inscribed on the World Heritage List, properties are removed from the Tentative Lists of States Parties.



- The Tentative Lists of States Parties are published by the World Heritage Centre at its website to ensure transparency, access to information and to facilitate harmonization of Tentative Lists at regional and thematic levels.

### **World Heritage List Nominations**

- Only countries that have signed the World Heritage Convention, pledging to protect their natural and cultural heritage, can submit nomination proposals for properties on their territory to be considered for inclusion in UNESCO's World Heritage List.
- To be included on the World Heritage List, sites must be of **outstanding universal value** and **meet at least one out of ten selection criteria**.
- Until the end of 2004, World Heritage sites were selected on the basis of six cultural and four natural criteria.
- With the adoption of the revised Operational Guidelines, only one set of ten criteria exists.

23. d

### **Naming Cyclones**

- In 2000, the World Meteorological Organisation (WMO) agreed to start assigning names for cyclones over the North Indian Ocean basin using a list of names suggested by the countries surrounding the ocean basin.
- Initially, India expressed reservations to naming cyclones and after four years of continuous deliberations, the India Meteorological Department (IMD) initiated the naming of the North Indian Ocean storm with Cyclone Onil in September 2004.
- There are six regional specialised meteorological centres (RSMCs) and five regional Tropical Cyclone Warning Centres (TCWCs) across the globe to monitor cyclogenesis, issue advisories and name cyclones.
- IMD's RSMC in New Delhi is one among them that provide advisories to 13 countries in the north Indian Ocean basin: Bangladesh, India, Iran, Maldives, Myanmar, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Thailand, United Arab Emirates and Yemen.
- RSMC, New Delhi is, therefore, responsible for naming cyclones over the Bay of Bengal and the Arabian Sea based on the suggested names from all these countries.
- Out of several criteria for naming cyclones, some very important ones are: names should be politically and culturally neutral, should not be rude and cruel and should be short, easy to pronounce.
- The maximum permissible length of the cyclone names is eight letters.

24. b

### **Creation of New District**

- The power to create new districts or alter or abolish existing districts rests with the State governments.
- This can either be done through an executive order or by passing a law in the State Assembly.
- Many States prefer the executive route by simply issuing a notification in the official gazette.
- States argue that smaller districts lead to better administration and governance.
- The Centre has no role to play in the alteration of districts or creation of new ones. States are free to decide.
- The Home Ministry comes into the picture when a State wants to change the name of a district or a railway station.
- The State government's request is sent to other departments and agencies such as the Ministry of Earth Sciences, Intelligence Bureau, Department of Posts, Geographical Survey of India Sciences and the Railway Ministry seeking clearance.
- A no-objection certificate may be issued after examining their replies.

25. d

### **MLA-LADS**

- Members of Legislative Assembly Local Area Development (MLA-LAD) Scheme is the States' version of a central government scheme - Members of Parliament Local Area Development Scheme (MPLAD).



- The objective of this scheme is to create local need based infrastructure, to create assets of public utility and to remove regional imbalances in development.
- This scheme is implemented in rural areas as well as urban areas of a state.
- Amounts per MLA varies across the states, Delhi has the highest allocation under MLALAD, and each MLA can recommend works for up to Rs. 10 crore each year.
- The guidelines for use of MLA-LAD funds differ across states.
- After the legislators give the list of developmental works, they are executed by the district authorities as per the government's financial, technical and administrative rules.
- Recently, Rajasthan Government has approved a proposal to provide Rs. 3 crore each from the MLA Local Area Development (LAD) Fund to mobilise resources for Covid-19 Vaccination of the people in the age group of 18 to 44 years.

26. d

### **Maratha Military Architecture in Maharashtra**

- There are 12 forts in Maharashtra dating back to the era of the 17th-century Maratha king Chhatrapati Shivaji, They are namely
  1. **Shivneri** - The birthplace of Shivaji.
  2. **Raigad** - The capital fort rebuilt for the coronation of the Maratha king,
  3. **Torna** - The first fort of the Maratha empire,
  4. **Lohagad** - Most picturesque valleys and is believed to have been built in the 14th century, an example of Maratha hill fort architecture until Peshwa period.
  5. **Salher Fort** - The fort witnessed a key battle in 1672 between Marathas and Mughals.
  6. **Mulher Fort** - One of three forts situated on a hill, flanked by Mora to the east and Hatgad to the west, the surrender of Mulher ended the third Maratha War.
  7. **Rangana Fort** - In Kolhapur, bordering Sindhudurg, Aurangzeb tried to conquer it along with Bhudargad and Samangad in his Deccan campaign, did not succeed.
  8. **Ankai Tankai Forts** - In Nashil district, Ankai and Tankai are separate forts on adjacent hills, with a common fortification wall.
  9. **Kasa Fort** - Popularly known as Padmadurg, built on a rocky island off coast of Murud, and provided a base for naval military operations.
  10. **Sindhudurg Fort** - Built by Chhatrapati Shivaji Maharaj in 1668, this sea fort is considered a masterpiece in military defence.
  11. **Alibag Fort** - Popularly known as Kulaba Fort, it was chosen as one of the forts to be modelled as a naval base by Chhatrapati Shivaji.
  12. **Suvarnadurg** - Built on an island, it was repaired and strengthened by Shivaji Maharaj in 1660.
  13. **Khanderi Fort** - Built in 1679, it was the site of many battles between Shivaji Maharaj's forces and the navy of the Siddhis.
- Recently these sites are added to tentative list of UNESCO World Heritage Sites.
- The theme for the serial nomination of these forts is 'Maratha Military Architecture in Maharashtra and Guerrilla Warfare'.

27. a

### **White Fungus Infections**

- It is a fungal infection where there is formation of whitish membranes or discharge caused by candida group of organisms.
- It is a fungal infection called candidiasis, it can be caused by the unsterile use of oxygen cylinders or the overuse of steroids.



- The symptoms are whitish patches in the oral cavity, white discharge, skin lesions and symptoms of pneumonia of cough, chest pain and low oxygen level.
- The Anti-fungal drugs can be used to treat patients infected with White Fungus.
- Candidiasis can be treated with fluconazole or itraconazole orally.
- The tropical applications will be required for infections in the oral cavity or genitourinary regions.
- It can be prevented by proper sanitisation of ventilators/oxygen cylinders and also, by taking accurate care of the medical types of equipment that are used on the patients.
- It is more likely to infect people with low immunity, it can also be caused if people come in contact with water or unsanitary environment containing the moulds.
- The disease isn't contagious but a person is said to be vulnerable to the infection since these moulds can be easily inhaled by a patient.
- The fungus can further spread to vital organs and cause complications.
- White fungus is curable with commonly available medicines and does not need expensive injections unlike in the case of mucormycosis.
- The people with low immunity, comorbidities, diabetes, cancer or those using steroids regularly are at a higher risk of getting infected with the white fungus.

### **Black Fungus**

- It is caused by a group of moulds known as mucormycetes present naturally in the environment.
- It mainly affects people who are on medication for health problems that reduces their ability to fight environmental pathogens.
- It is treated with antifungals and mucormycosis may eventually require surgery.

28. d

- *The World Health Organization (WHO) and the Swiss Confederation has recently signed a Memorandum of Understanding to launch the **first WHO BioHub Facility** as part of the WHO BioHub System.*
- The facility established in **Spiez, Switzerland** under the WHO BioHub System will enhance the rapid sharing of viruses and other pathogens between laboratories and partners globally.
- The facility will serve as a centre for the safe receipt, sequencing, storage and preparation of biological materials for distribution to other laboratories, in order to inform risk assessments, and sustain global preparedness against these pathogens.

### **Background**

- Currently, most pathogen sharing is done bilaterally between countries and on an ad hoc basis, which can be slow, and leave some countries without access to the benefits and tools.

### **Bio Hub system**

- To address the issue, the World Health Organization (WHO) has established the BioHub System in November 2020.
- It will enable Member States to share biological materials with and via the BioHub under pre-agreed conditions, including biosafety, biosecurity, and other applicable regulations.
- This will ensure timeliness and predictability in response activities.

29. b

- *The National Green Tribunal (NGT), Southern Zone has recently appointed a joint committee to look into allegations of unauthorised construction activity taking place in Mekedatu, where the Karnataka government had proposed to construct a dam across the Cauvery River.*

### **Mekedatu Dispute**

- Mekedatu, meaning goat's leap, is a deep gorge situated at the confluence of the rivers Cauvery and Arkavathi, about 100 km from Bengaluru, at the Kanakapura taluk in Karnataka's Ramanagara district.



- In 2013, the then Karnataka Law Minister TB Jayachandra announced the construction of a multi-purpose balancing reservoir project over the Mekedatu.
- The Rs 5,912-crore project aims to alleviate the drinking water problems of Bengaluru and Ramanagara district.
- It is also expected to generate hydro-electricity to meet the power needs of the state.

**Tamil Nadu's response**

- Soon after the project was announced in 2013, the then Tamil Nadu Chief Minister J Jayalithaa wrote to then Prime Minister Manmohan Singh asking him not to grant permission or environmental clearance.
- Explaining the potential for damage to the lower riparian state of Tamil Nadu, she said that the project was in violation of the final award of the Cauvery Water Disputes Tribunal.

30. d

**Sudano Sahelian Zone (SSZ)**

- Safe Climatic Space is defined as the areas where 95 per cent of global food crop production takes place due to favourable weather conditions, temperature, rainfall, etc.
- Sudano Sahelian Zone (SSZ) is one of the poorest in the world, is characterised by fluctuating rainfall and droughts, it lies outside of safe climatic space (SCS).
- The semi-arid SSZ is located between the Sharan dessert and the humid Guinean zone and stretches from the Atlantic coast to the red sea coast.
- It comprises 16 countries in Africa, is the most vulnerable to climate change.
- The associated risks have pushed food crop as well as livestock production outside safe climatic space (SCS), in turn jeopardising food security in the region, a new study has warned.

31. c

**Trinity of Carnatic Music**

- It refers to the outstanding trio of composer-musicians of Carnatic music in the 18th century.
- They were also called as the Three Jewels of Carnatic music.
- All three composers were born in Thiruvurur, formerly part of Thanjavur District in Tamilnadu.

The Trinity of Carnatic music are:

1. Shyama Sastry
2. Thyagaraja Swamy
3. Muthuswami Dikshitar

**Tamil Trinity of Carnatic Music**

They are also known as the Tamil Moovar. They were:

1. Arunachala Kavi
  2. Muthu Thandavar
  3. Marimutthu Pillai
- They lived five decades before the Tiruvarur Trinity or Trinity of Carnatic Music.
  - They introduced several innovations that led to the evolution of the Carnatic kriti (song).

**Female Trinity of Carnatic Music**

- They are Carnatic musicians of the 20th century, popularly referred to as the female Trinity of Carnatic music. They were:
1. D. K. Pattammal
  2. M. S. Subbalakshmi
  3. M. L. Vasanthakumari



32. d

**Judicial Disqualification or Recusal**

- Judicial disqualification, referred to as recusal, is the act of abstaining from participation in an official action such as a legal proceeding due to a conflict of interest of the presiding court official or administrative officer.
- Grounds for Recusal includes
  1. The judge is biased in favour of one party, or against another, or that a reasonable objective observer would think he might be.
  2. Interest in the subject matter, or relationship with someone who is interested in it.
  3. Background or experience, such as the judge's prior work as a lawyer.
  4. Personal knowledge about the parties or the facts of the case.
  5. Ex parte communications with lawyers or non-lawyers
- There are no definite rules on recusals by Judges, However in taking oath of office, judges, both of the Supreme Court and of the high courts, promise to perform their duties, to deliver justice, "without fear or favour, affection or ill-will".

33. d

**Volatiles Investigating Polar Exploration Rover (VIPER)**

- Volatiles Investigating Polar Exploration Rover (VIPER) is a lunar rover developed by NASA.
- It is currently planned to be delivered to the surface of the Moon in November 2023.
- VIPER runs on solar power, it will be required to quickly manoeuvre around the extreme swings in light and dark at the lunar South Pole.
- The rover will be tasked with mapping the distribution and concentration of water ice.
- Once on the Moon, the rover will explore lunar craters using a specialised set of wheels and suspension system to cover a variety of inclines and soil types.
- VIPER will be carried aboard Astrobotic's Griffin lander as part of NASA's Commercial Lunar Payload Services (CLPS) initiative.
- VIPER will carry four instruments on board, this includes
  1. The Regolith and Ice Drill for Exploring New Terrains (TRIDENT)
  2. The Mass Spectrometer Observing Lunar Operations (MSolo) instrument.
  3. The Near Infrared Volatiles Spectrometer System (NIRVSS).
  4. The Neutron Spectrometer System (NSS).

34. d

- *The 43rd GST Council has recently met under the Chairmanship of Union Finance Minister Smt. Nirmala Sitharaman through video conferencing.*

**GST Council**

- The Goods and Services Tax (GST) is governed by the GST Council.
- Article 279 (1) of the amended Indian Constitution states that the GST Council has to be constituted by the President within 60 days of the commencement of the Article 279A.
- According to the article, GST Council will be a joint forum for the Centre and the States.
- GST Council is an apex member committee to modify, reconcile or to procure any law or regulation based on the context of goods and services tax in India.
- The GST Council dictates tax rate, tax exemption, the due date of forms, tax laws, and tax deadlines, keeping in mind special rates and provisions for some states.

It consists of the following members:

1. The Union Finance Minister, (the Chairperson)





2. As a member, the Union Minister of State will be in charge of Revenue of Finance
3. The Minister in charge of finance or taxation or any other Minister nominated by each State government, as members.

### Forum

- One-half of the total number of members of GSTC form quorum in meetings of GSTC.
- Decision in GSTC are taken by a majority of not less than three-fourth of weighted votes cast.
- Centre has one-third weightage of the total votes cast and all the states taken together have two-third of weightage of the total votes cast.
- All decisions taken by the GST Council has been arrived at through consensus. The option of exercising a vote has not been resorted to till date.

35. c

- *The Ministry of Education has recently launched 'YUVA- Prime Minister's Scheme for Mentoring Young Authors'.*

### YUVA – Prime Minister's Scheme for Mentoring Young Authors

- It is an author mentorship programme to train young and budding authors below the age of 30.
- Those who are interested to write on themes such as national movement, unsung heroes, freedom fighters can register themselves at mygov.in.
- These books will be launched on National Youth Day (January 12, 2022).
- The winner will also get a scholarship worth Rs. 50,000 per month for a period of six months.
- The National Book Trust, India under the Ministry of Education as the Implementing Agency will ensure phase-wise execution of the Scheme.
- The books prepared under this scheme will be translated into other Indian languages.

36. c

- The Philippines has protested China's continuing illegal presence and activities near Thitu Island in the **South China Sea**.
- Thitu, known as Pag-asa in the Philippines, is the biggest of the eight reefs, shoals and islands it occupies in the Spratly archipelago.
- The Pag-asa Islands is an integral part of the Philippines over which it has sovereignty and jurisdiction.
- China has built a mini-city with runways, hangars and surface-to-air-missiles in the Subi Reef about 25 km from Thitu.

37. a

### 17+1 Initiative

- The 17+1 initiative is a China-led format founded in 2012 in Budapest with an aim to expand cooperation between Beijing and the Central and Eastern European (CEE) member countries, with investments and trade for the development of the CEE region.
- The framework also focuses on infrastructure projects such as bridges, motorways, railway lines and modernisation of ports in the member states.
- The platform is largely seen as an extension of China's flagship Belt and Road initiative (BRI).
- China's narrative towards the 17+1 initiative is about improving its relations with the European countries that are less developed as compared to the Western European states.
- The initiative includes twelve EU member states and five Balkan states – Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia and Slovenia.
- Recently Lithuania has quit China's 17+1 cooperation forum with central and eastern European states that includes other EU members.



- It has also urged fellow EU members to pursue “a much more effective 27+1 approach and communication with China.”

38. d

- *Actor Sanjay Dutt has recently received his golden visa from the UAE government.*

### **Golden Visa**

- The Golden Visa system for long-term residence visas (5 and 10 years) was implemented in 2019 by the United Arab Emirates (UAE).
- It enables the foreigners to live, work and study in the UAE without the need of a national sponsor and with 100% ownership of their business.
- **Benefit** - The main benefit will be security as through the issuance of the Golden Visa; the UAE government provides an extra reason to feel secure for those looking to make the UAE their home.
- **Eligibility** - The Golden Visa is offered to investors, entrepreneurs, individuals with outstanding talents and remarkable students.
- **For 10-year visa** - Investors having no less than AED 10 million worth of public investment (as an investment fund or a company) can apply.
- However, at least 60% of the total investment must not be in the form of real estate and the invested amount must not be loaned, or in case of assets, investors must assume full ownership.
- The investor must be able to retain the investment for a minimum of 3 years as well.
- This 10-year long visa may be extended to include business partners, if each partner contributes AED 10 million.
- The long-term visa can also include the holder’s spouse and children, as well as one executive director and one advisor.
- Besides entrepreneurs, individuals with specialised talent may be granted a 10-year visa following accreditations given by their respective departments and fields.
- Their visa will also be extended to their spouses and children.
- **For 5-year visa** - The norms for investors for the 5-year visa are largely similar as that of the 10-year visa, but they must invest AED 5 million.
- Exceptional High school students who rank top in the country (a minimum grade of 95%) and students from certain universities with a GPA of 3.75 or higher upon graduation are eligible for a 5-year visa.
- Foreigners who are looking to set up their business in the UAE may also apply for 5-year visa through the Golden Business Visa scheme.

39. a

### **Reclining Buddha Statue**

- Parinirvana the stage of great salvation after death that can only be attained by enlightened souls.
- Mahaparinirvana of the Buddha is supposed to be a very important event that happened in Kushinagar.
- It is not simply a demise it is the great demise, after which there is no rebirth for him.
- It is a popular iconographic depiction in Buddhism, and is meant to show that all beings have the potential to be awakened and be released from the cycle of death and rebirth.
- The Reclining Buddha was first depicted in Gandhara art, which began in the period between 50 BC and 75 AD, and peaked during the Kushana period from the first to the fifth centuries AD.

40. a

### **Begum Sultan Jahan**

- Born in 1858, Begum Sultan Jahan ascended the throne in 1901.
- She was the first female Chancellor of Aligarh Muslim University, which she had nurtured during its nascent stage.



- She was a pioneer in the field of education and even authored a book, Dars-e-Hayat, about the education and parenting of young girls.
- To encourage women and promote handicrafts, she organised an exhibition called 'Numaish Masunuaat e Hind' in Bhopal, where she displayed her own creations.
- Queens from other kingdoms, such as Gwalior, Jhanjhar, Sultanpur, Narsinghgarh and Gulburgah also participated and displayed their handiwork.

41. d

***Diplomatic Immunity***

- The custom was formed so that diplomats can function without fear, threat or intimidation from the host country.
- The diplomatic immunity is granted on the basis of two conventions, popularly called the Vienna Conventions.
- India ratified the Vienna Convention on Diplomatic Relations in 2008.
- According to the Vienna Convention the diplomat cannot be arrested or detained and his house will have the same inviolability and protection as the embassy.
- If a diplomat acts outside his business of conducting international relations, a question arises over whether his immunity still applies.

42. d

***Network for Greening the Financial System (NGFS)***

- The Reserve Bank of India (RBI) has joined the Central Banks and Supervisors Network for Greening the Financial System (NGFS) as a member.
- NGFS launched at the Paris One Planet Summit on December 12, 2017.
- It is a group of central banks and supervisors willing to share best practices and contribute to the development of environment and climate risk management in the financial sector.
- It also seeks to mobilise mainstream finance to support the transition towards a sustainable economy.
- The secretariat is hosted by the Banque de France.

43. c

***Polar Wandering***

- Polar wandering is the motion of a pole in relation to some reference frame.
- It can be used, for example, to measure the degree to which Earth's magnetic poles have been observed to move relative to the Earth's rotation axis.
- This motion is caused by the rearrangement of the mantle and the crust in order to align the maximum inertia with the current rotation axis.
- True polar wandering represents the shift in the geographical poles relative to Earth's surface, after accounting for the motion of the tectonic plates.
- This is the situation with the lowest kinetic energy for the given, unchanging, angular momentum of the earth, and is attained as kinetic energy is dissipated due to the non-rigidity of the earth.
- Global warming and melting glaciers could have redistributed the global water fronts to such an extent that they have redefined the 'polar wander' or the drifting of the Earth's axis.

44. b

***Biomedical Waste (Management and Handling) Rules***

- According to Biomedical Waste (Management and Handling) Rules, biomedical waste is any waste which is generated during the diagnosis treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biologicals
- Central Level - The Central Pollution Control Board (CPCB) to ensure strict compliance of biomedical waste management rules and scientific disposal of the waste.



- State Level - The Chief Secretaries of all the States/UTs to oversee compliance and ensure that authorisation is secured by every health care facility in their respective jurisdiction and also there is adherence to the norms.
- District Level - The District Magistrates in accordance with the District Environmental Plans.
- Central pollution control board (CPCB) has released guidelines for biomedical waste management generated from COVID-19
- These guidelines were to be followed in addition to biomedical waste management rules 2016
- The rules provide for colour coding of waste categories with treatment options
- **Yellow Waste categories include**
  1. Human and animal anatomical wasters soiled wastes which can be treated by Incineration or plasma pyrolysis or deep burial.
  2. Expired medicines need to be return back to manufacturer or supplier for incineration at >1200 degree Celsius.
  3. Chemical wastes can be treated by Incineration.
  4. Chemical liquid wastes shall be pre-treated before mixing with other Wastewater.
  5. Discarded linens, mattresses etc. which can be treated by Non chlorinated chemical disinfection followed by incineration
  6. Microbiological waste shall be pre-treat to sterilise with non-chlorinated chemicals thereafter incineration.
- **Red waste categories include** - Contaminated waste (Recyclable) which can be treated by Autoclaving /micro waving /hydro calving and sterilization and shredding
- **White waste categories include** - Waste sharps including metals which can be treated by Autoclaving/dry heat sterilization
- **Blue waste categories include** - Cardboard boxes with blue coloured marking which can be treated by Disinfection/autoclaving/microwaving/hydroclaving

45. a

### **Model Insurance Villages**

- Insurance Regulatory & Development Authority of India (IRDAI) has come out with the concept of model insurance villages.
- The idea behind the model village concept is to make available covers at affordable or subsidised cost.
- The concept may be implemented in a minimum of 500 villages in different districts of the country in the first year and increased to 1,000 villages in the subsequent two years.
- The choice of villages is to be made carefully, considering the various relevant aspects and parameters in order to implement the concept successfully for a period of three to five years.
- The efforts in selected villages need to be continued for a minimum of 3 to 5 years so as to make insurance benefits visible to the community.
- It aims to demonstrate the concept and efficacy of insurance as risk management tool and to make farmers and rural population aware of benefits of insurance.
- The special focused efforts need to be made to cover the entire population in the village and their property.
- The coverage will include farms/crops, farm machineries, vehicles, different village level services, manufacturing enterprises and other specific insurance needs of the particular village through targeted efforts.
- The model villages are expected to tackle losses due to natural calamities like floods and earthquakes as there is no catastrophe insurance in the country now.

46. c

### **Hakki Pikki Tribes**

- It literally means bird hunters in Kannada.



- They are a nomadic tribe of hunter-gatherers that once roamed the forests of the country.
- In the 1970's, once stringent wildlife protection laws were passed, the government rehabilitated the tribe to urban areas in Karnataka.

47. a

- In spite of adding the highest number of cases in the world every day, India continues to label itself as a country with no community transmission (CT), the weekly report of the World Health Organisation (WHO) said recently.
- Instead it is opting for the lower, less serious classification called '**Cluster of Cases**'.
- Countries such as the United States, Brazil, United Kingdom, France — and a perusal of the list of over 190 countries suggest the majority — have all labelled themselves as being in 'community transmission'.
- India, since the beginning of the pandemic has never marked itself as being in community transition.

### **Community Transmission**

- Community Transmission is said to be happened when new cases in the last 14 days can't be traced to those who have an international travel history, when cases can't be linked to specific cluster.
- The WHO guidelines further suggest four subcategories within the broader definition of Community Transmission.
- **States and countries are expected to classify themselves appropriately and point to the kind of public health measures in place.**

48. d

### **Liquid Medical Oxygen**

- It is high purity oxygen suitable for use in the human body, it is used for medical treatments.
- This oxygen provides a basis for virtually all modern anaesthetic techniques, restores tissue oxygen tension by increasing the oxygen availability, aids cardiovascular stability, etc.
- The World Health Organisation includes this on their List of Essential Medicines.

49. d

### **Types of Lending Rates**

- **Marginal Cost of Lending Rate:** It came into effect in April 2016 and it is a benchmark lending rate for floating-rate loan, it is linked to the actual deposit rates.
- This is the minimum interest rate at which commercial banks can lend.
- This rate is based on four components, the marginal cost of funds, negative carry on account of cash reserve ratio, operating costs and tenor premium.
- **Prime Lending Rates:** Under it, bank loans were priced on the actual cost of funds.
- However, the PLR was subverted, resulting in an opaque system, it was used till June 2010.
- Under this system, banks were subsidising corporate loans by charging high interest rates from retail and small and medium enterprise customers.
- The Housing Finance Companies base their lending rates on Prime Lending Rates and offer a discount on it to customers.
- The cut in rates for existing customers depends on the reduction in MCLR by banks and in PLR by HFCs in response to a repo cut by RBI.
- **Repo Rate:** It is the rate at which the central bank of a country (Reserve Bank of India in case of India lends money to commercial banks in the event of any shortfall of funds. It is used by monetary authorities to control inflation.
- In the event of inflation, central banks increase repo rate as this acts as a disincentive for banks to borrow from the central bank.
- This ultimately reduces the money supply in the economy and thus helps in arresting inflation.



- The central bank takes the contrary position in the event of a fall in inflationary pressures.
- When the RBI slashes its repo rate, it expects the banks to lower their interest rates charged on loans.

50. a

- *The Ministry of Home Affairs, through its order in March, 2021, had required the professional Overseas Citizens of India (OCIs), such as journalists, engineers and researchers, to notify the Ministry about their activities in India.*

### **Overseas Citizen of India (OCI)**

- OCIs are of Indian origin but hold foreign passports.
- India does not allow dual citizenship but provides certain benefits under Section 7B(I) of the Citizenship Act, 1955 to the OCIs.

### **Who is an Overseas Citizen of India?**

A foreign national of the following are eligible for registration as OCI cardholder in India.

1. who was a citizen of India at the time of, or at any time after 26th January, 1950; or
  2. who was eligible to become a citizen of India on 26th January, 1950; or
  3. who belonged to a territory that became part of India after 15th August, 1947; or
  4. who is a child or a grandchild or a great grandchild of such a citizen; or
  5. who is a minor child of such persons mentioned above; or
  6. who is a minor child and whose both parents are citizens of India or one of the parents is a citizen of India
- Besides, spouse of foreign origin of a citizen of India or spouse of foreign origin of an Overseas Citizen of India Cardholder and whose marriage has been registered and subsisted for a continuous period of not less than two years immediately preceding the presentation of the application is also eligible for registration as OCI cardholder.
  - However, no person, who or either of whose parents or grandparents or great grandparents is or had been a citizen of Pakistan, Bangladesh or such other country as the Central Government may, by notification in the Official Gazette, specify, shall be eligible for registration as an Overseas Citizen of India Cardholder.
  - **Foreign nationals cannot apply for OCI in India while on Tourist Visa, Missionary Visa and Mountaineering Visa.**
  - Moreover, the foreigner has to be ordinarily resident of India to be eligible to apply for OCI registration in India.
  - **Note:** 'ordinarily resident' will mean a person staying in a particular country or in India **for a continuous period of 6 months.**

### **Benefits of OCI**

- Multiple entry, multi-purpose life long visa to visit India;
- Exemption from reporting to Police authorities for any length of stay in India; and
- Parity with NRIs in financial, economic and educational fields **except in the acquisition of agricultural or plantation properties.**