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G.S PAPER I

1. GEOGRAPHY

1.1 Godavari - Cauvery Link Project - Cauvery Component

What is the issue?

- Tamil Nadu recently launched its intra-State river linking project by building a canal from the Cauvery to the Vaigai and the Gundar, a part of the larger Godavari-Cauvery Link Project.
- The rationale for the plan causes concerns given the environmental and geographical features of the region developed over the years.

What does the project aim at?

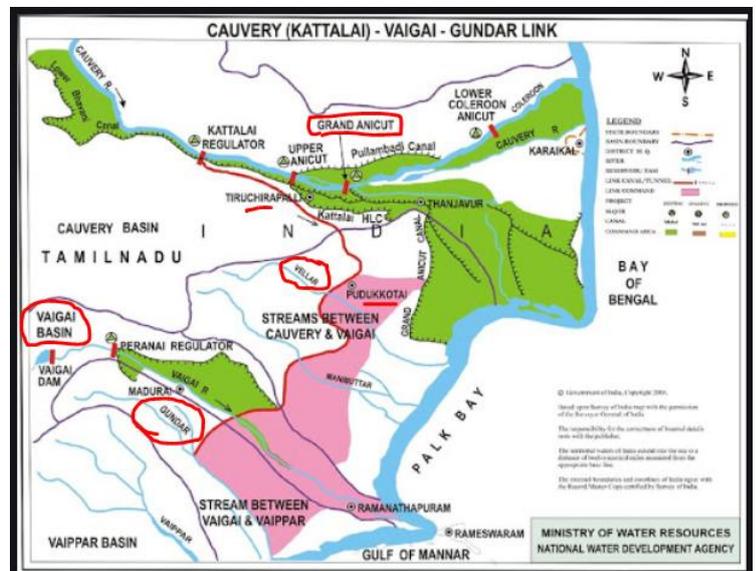
- The Cauvery - Gundar link project forms part of the peninsular rivers' development component of the National Perspective Plan.
- The latter envisages diversion of surplus flows of the Mahanadi basin and the Godavari basin to the water-short Krishna, Pennar, Cauvery, Vaigai and Gundar basins in the South.
- The Cauvery - Gundar link project seeks to divert surplus flows from the Cauvery to the water scarce southern parts of the State.
- This component will be carried out in three phases:
 1. First phase – linking Cauvery to the South Vellar river (118.45 km)
 2. Second phase - linking the South Vellar and Vaigai rivers (110 km)
 3. Third phase - linking the Vaigai with the Gundar river (34.04 km)
- The first significant step towards the linking was made with the commissioning of the barrage across Cauvery at Mayanur in Karur district in 2014.



- The barrage will form the head of the new link canal.
- The link canal will carry the surplus waters from the Cauvery to the South Vellar, the Vaigai river and finally the Gundar.
- The canal will have a capacity to carry about 6,000 cusecs of water.

What is the government's rationale?

- The Cauvery is perceived to carry surplus water.
- This is mixing into the Sea unused, when the water demand for agricultural use is evident year after year.
- So, the idea is to divert the surplus water through a canal, so as to irrigate farm lands.
- The canal, of nearly 250 km, travelling North-South, will carry 6,000 cusecs of water from



Kattalai barrage in the north end, to the Gundar river in the South.

What are the concerns with this approach?

- The idea of surplus or deficit in terms of a river seems essentially flawed.
- It all depends on the amount of water being used and for what.
- The excess water flowing across the banks ought to be identified as flood; it is not surplus indeed.
- In that case, floods are to be seen neither as wastage of water nor as surplus and so to be commercialised.
- This is because floods do play a key role in a riverine ecosystem and the associated geographical features.

Why are floods significant?

- The present day Cauvery delta region is largely a result of the deposits and sedimentation formed with floods in Cauvery river over generations.
- All these resulted from the free flow of water along the entire course of the river from its various tributaries, canals and up to the streams and rivulets.
- Excavations in the Cauvery banks and the region around, if done, would reveal this fact.
- Floods thus play a key role in delta formation.
- Moreover, the flooding at intervals and free flow of water along the river channel help preserve the biodiversity of the region, especially fishes.
- Related article: [Kaziranga and Brahmaputra Floods](#)

What impact will the plan have over the deltas?

- The Cauvery River has already in place an old delta and a new delta.
- The former one was formed naturally by Cauvery and its tributary Vennar.
- The latter took shape as a result of constructing the Kallanai Dam (Grand Anicut) in the 1930s.
- Now, the inter-state river link project is expected to make way for a new, third delta for the Cauvery.
- The link river would notably pass in the north-south direction.
- So, a possible delta formation over the course of time could interrupt the natural course of Cauvery and the natural geo-features in the region around.
- This may not happen any soon but the idea of viewing floods as surplus water and commercialising it are disturbing trends to environment protection and conservation.

G.S PAPER II

2. POLITY

2.1 Lateral Entry into Bureaucracy

Why in news?

UPSC has recently issued an advertisement to recruit through lateral entry in the second round.

What is 'lateral entry' into government?

- This refers to the induction of new personnel at middle and senior management levels in the central government.
- These 'lateral entrants' would be part of the central secretariat.
- The secretariat, in the normal course, has only career bureaucrats from the All India Services/ Central Civil Services.

What are the recent lateral appointments?

- Applications were open for appointment of 30 persons at the Joint Secretary and Director level in the Central administration.
- These individuals, who would make a “lateral entry” into the government secretariat, would be contracted for 3 to 5 years.
- These posts were “unreserved”, meaning no quotas for SCs, STs and OBCs.
- The new advertisement is for the second round of such recruitments.
- Earlier, lateral appointments were made for 10 positions of Joint Secretary in different Ministries/Departments and 40 positions at the level of Deputy Secretary/Director.
 1. A Joint Secretary, appointed by the Appointments Committee of the Cabinet (ACC), has the third highest rank (after Secretary and Additional Secretary) in a Department.
 2. S/he functions as administrative head of a wing in the Department.
 3. Directors are a rank below that of Joint Secretary.

What is the government’s rationale?

- Government has, from time to time, appointed some prominent persons for specific assignments in government.
- This is keeping in view their specialised knowledge and expertise in the domain area.
- Lateral recruitment is thus aimed at achieving the twin objectives of bringing in fresh talent and augmenting the availability of manpower.
- However, groups representing SCs, STs and OBCs have protested the fact that there is no reservation in these appointments.
- The move is seen as another ploy to sideline and reduce reservations for deprived sections.

Why are these posts claimed to be “unreserved”?

- As per the currently applicable “13-point roster”, there is no reservation up to three posts.
 - The expression “13-point roster” reflects the fact that 13.33 (or 14) vacancies are required to complete one cycle of reservations.
 - Based on this, every 4th, 7th, 8th, 12th, and 14th vacancies are reserved for OBCs, SCs, OBCs, OBCs, and STs respectively in the 13-point roster.
- In a single post cadre, reservation does not apply.
- Since each post to be filled under the above scheme is a Single Post, reservation is not applicable.
- Each of the nine individuals appointed in 2019 was recruited as a separate appointment.
- If they had been considered as a group of nine, there would have been at least two seats for OBCs and one seat for an SC candidate as per the Centre’s reservation rules.
- But presently too, the posts have been advertised/ considered separately for each Department.
- So, all of them have been declared “unreserved”.

2.2 Haryana’s Job Reservation Law

What is the issue?

- The Haryana State Employment of Local Candidates Bill, 2020 passed earlier was notified recently.
- Here is a look at the government’s rationale for this law, and the constitutional questions such laws would face if challenged in court.

What does the law say?

- The law requires private companies to set aside 75% of jobs for domiciles.



- This applies for jobs up to a monthly salary of Rs 50,000 or as may be notified by the government from time to time.
- It is applicable to all the companies, societies, trusts, limited liability partnership firms, partnership firms and any person employing 10 or more persons.
- It would also include an entity as may be notified by the government from time to time.
- In July 2019, the Andhra Pradesh government had passed a similar law, which was challenged in court.
- The Andhra Pradesh High Court had made a prima facie observation that the move might be unconstitutional.
 - But the challenge is yet to be heard on merits.

What is Haryana government's rationale?

- Haryana's unemployment rate has been far in excess of the national average since August 2017.
- It reached a peak in April 2020 when four out of every 10 people looking for a job failed to get one.
- The Covid-induced lockdowns have been removed and the economy opened up.
- But Haryana's unemployment rate has continued to be high and is still rising.
- The work opportunities in the government is also shrinking.
- The law thus comes at addressing these or dealing with these.

What are the legal issues in such laws?

- **Domicile reservation in jobs** - Domicile quotas in education are fairly common.
- However, courts have been reluctant in expanding this to public employment.
- The Madhya Pradesh government recently decided to reserve all government jobs for "children of the state."
- This raised questions relating to the fundamental right to equality of citizens.
- **Private sector** - Another more contentious question is the issue of forcing the private sector to comply with reservations in employment.
- For mandating reservation in public employment, the state draws its power from Article 16(4) of the Constitution.
- The Constitution thus places the responsibility of ensuring equality of all citizens squarely on the state.
- The Constitution has no manifest provision for private employment from which the state draws the power to make laws mandating reservation.
- The Courts will have to see if the state was delegating its role to the citizens, and whether that is permissible.

What are the governments' arguments in bringing such laws?

- Public sector jobs constitute only a minuscule proportion of all jobs.
- Legislators have thus talked about extending the legal protections to the private sector.
- The objective is to really achieve the constitutional mandate of equality for all citizens.
- Another argument is that private industries use public infrastructure in many ways.
- E.g. accessing land through subsidised allotment, receiving credit from public banks, tax exemptions and in many cases subsidies for fuel, etc
- So, the state has a legitimate right to require them to comply with the reservation policy.
- A similar argument was made in requiring private schools to comply with the Right to Education Act, which the Supreme Court also upheld.
- Besides these, such laws may be seen as populist move too.

What are the likely implications of such laws?

- Domicile reservations might lead to balkanisation of India's labour market.
- Free mobility of labour corrects several demographic and economic imbalances among states.



- Curbing this mobility will inhibit overall economic growth and employment generation.
- With Haryana too, the law is likely to hurt the low-skilled workers.
- It might push the state's industrial and services sector towards greater "informalisation".
- In other words, the same workers will be paid less and have next to nothing social security because they will not be formally on the payrolls.
- According to the Periodic Labour Force Survey, nearly 97% of workers in the private sector draw a salary of less than Rs 50,000 a month.
- So the Rs 50,000 monthly salary limit would cover most of the private sector employment in the state.

2.3 Revisiting the Indra Sawhney Judgement/Mandal Case

Why in news?

- The Supreme Court recently examined the constitutional validity of the Maratha reservation.
- In this regard, it also said that it would look into whether the landmark 1992 decision in Indra Sawhney v Union of India needs to be revisited.

What is the Maharashtra law facing challenge?

- A Constitution Bench headed by Justice Ashok Bhushan is currently hearing the challenge to the Maharashtra law.
- The law provides quotas for Marathas in jobs and admissions in the state.
- The Bombay High Court had upheld the constitutional validity of the quota.
- However, it said that the quota should be reduced from 16% to 12-13%, as recommended by the State Backward Classes Commission.
- The ruling was challenged before a Supreme Court Bench, which referred it to a larger Constitution Bench.

What is the Indra Sawhney case?

- In 1979, the Second Backward Classes Commission (Mandal Commission) was set up.
- It was tasked to determine the criteria for defining the socially and educationally backward classes.
- The Mandal report identified 52% of the population at that time as "Socially and Economically Backward Classes" (SEBCs).
- It thus recommended 27% reservation for SEBCs.
- This was in addition to the previously existing 22.5% reservation for SC/STs.
- In 1990, the V P Singh led-government set out to implement the Mandal commission recommendations.
- This was challenged in court amidst widespread protests against the move.
- The case came up before a nine-judge Bench and a 6:3 verdict was delivered in 1992, popularly called the Indra Sawhney judgement.

What did the Indra Sawhney ruling say?

- The court upheld the office memorandums that essentially implemented the Mandal report.
- The executive orders mandating 27% reservation for backward castes were said to be valid.
 - The reservation was made not just on the basis of caste, even if it appears so.
 - It is also made on the basis of objective evaluation of social and educational backwardness of classes, which is the criterion previously laid down by the court.
- The landmark Indra Sawhney ruling set two important precedents.
- First, it said that the criteria for a group to qualify for reservation is "social and educational backwardness".
- Additionally, the court also reiterated the 50% limit to vertical quotas it had set out in earlier judgements in 1963 (M R Balaji v State of Mysore) and in 1964 (Devadasan v Union of India).



- It reasoned that this was needed to ensure “efficiency” in administration.
- The court said this 50% limit will apply, unless in “exceptional circumstances”.
 - The social and educational backwardness criteria stemmed from interpretation of various constitutional provisions.
 - But the 50% limit is often criticised as being an arbitrary limit.

How does the judgement relate with the Maratha reservation?

- There are two main constitutional questions for the court to consider in the challenge to the Maratha quota law:
 1. whether states can declare a particular caste to be a socially and educationally backward class
 2. whether states can breach the 50% ceiling for “vertical quotas” set by the Supreme Court
- Notably, the 102nd Amendment to the Constitution gives the President the powers to notify backward classes.
 - The court will have to look into whether states have similar powers under this.
- Also, this power flows from the Constitution.
- The Court will thus have to see if the President is still required to comply with the criteria set by the Supreme Court in the Mandal case.
- The relevance of the Indra Sawhney criteria is also under question in another case in which the validity of the 103rd Amendment has been challenged.
 - The 103rd Amendment, passed in 2019, provides for 10% reservation in government jobs and educational institutions for the economically weaker section in the unreserved category.
- Similar to the Maratha issue are the cases of Patels in Gujarat, Jats in Haryana, and Kapus in Andhra Pradesh.
- Additionally, with the implementation of the Maharashtra law, the vertical quota in the state could go up to 68%. This was 52% before the passing of the law.
- This aspect will also come under question.
- The Indra Sawhney verdict gives a pass to breach of the 50% quota rule only in exceptional circumstances.
- The court will have to test if the Maharashtra law qualifies to be an exception.
- The potential reconsideration of the popular Indra Sawhney ruling could alter the structure of reservations that has been in place for decades.

Have any other states breached the 50% ceiling before?

- States have breached the 50% ceiling before and intend to bring more reservation.
- A notable example is Tamil Nadu.
 - Tamil Nadu Backward Classes, SCs and STs (Reservation of Seats in Educational Institutions and of Appointments or Posts in the Services under the State) Act, 1993
- The Act reserves 69% of the seats in colleges and jobs in the state government.
- However, this was done by amending the Constitution, to place the law in the Ninth Schedule after the Indra Sawhney judgment.
- The Ninth Schedule provides the law with a “safe harbour” from judicial review under Article 31A of the Constitution.
- Laws placed in the 9th Schedule cannot be challenged for reasons of violating any fundamental right protected under the Constitution.
- However, the Tamil Nadu law was challenged in 2007 (I R Coelho v State of Tamil Nadu).
- To this, the Supreme Court ruled in a unanimous 9-judge verdict.
- It said that while laws placed under 9th Schedule cannot be challenged on the grounds of violation of fundamental rights, they can be challenged on the ground that it violates the basic structure of the Constitution.

- A later Bench was to decide whether the Tamil Nadu law itself (breaching the 50% ceiling) violates basic structure, based on the I R Coelho verdict.
- The Bench has not been set up yet.

2.4 Supreme Court Order on State Election Commissioners

Why in news?

- The Supreme Court (SC) recently ruled that the State Election Commissioners (SECs) across the country should be completely independent.
- They should not be persons holding office with the central government or a state government.

What is the case about?

- The observation came in a case relating to the municipal elections in Goa.
- The Goa government had moved the Supreme Court against a ruling of the High Court of Bombay at Goa.
- The HC had quashed an order of the Goa government.
- The order determined the reservation of seats in wards of five of the 11 municipal councils that were set to go to polls.
- The High Court ruling had come on a clutch of petitions filed by Goan residents.
- They had urged the court to set aside an earlier order of the Director of Municipal Administration.
- The petitioners alleged that, in the order, wards were arbitrarily reserved.
- Also, constitutional provisions mandating 33% seats for women and rotation of seats reserved for SC/ST candidates were not followed.
- The HC was of the opinion that the course adopted by the state government violates the constitutional mandate of law in reserving one-third seats for women in all local body polls.
- The High Court directed the Director, Municipal Administration to carry out the reservation of the wards afresh “rectifying gross illegalities”.
- It was also asked to issue a fresh election schedule.
- The state government had contended that the courts cannot interfere in the election schedule since they were imminent.
- But the Supreme Court has upheld the ruling of the High Court.

What did the Supreme Court rule?

- The SC directed the Goa government to redo the exercise of delimitation and reservation of municipal wards for women and SC/ST candidates in five municipal councils that were set to go to polls in a week.
- The Court also directed the State to appoint an independent SEC.
- The government is now in the process of doing.
- The Court has also asked all SECs who are under the direct control of the respective State governments to step down from their posts.
- It has done this by invoking its extraordinary power under Article 142 of the Constitution.
- The Court has boosted the power of the SEC by holding that it is open to the SECs to revoke any violations of the law made by the State government in the course of preparing for local body polls.

What were SC’s observations on State Election Commissioners?

- The SEC (State Election Commissioner) in Goa was the state Law Secretary.
- Noting this, the apex Court described it as the “most disturbing feature of the case”.
- The court noted that the Law Secretary, an IAS officer, was appointed SEC by the Goa Governor in November, 2020, handing him an additional duty.
- In this regard, the Court said the following:

- The SEC is an important constitutional functionary who is to oversee the entire election process in the state for panchayats and municipalities.
- The SEC thus has to be a person who is independent of the State Government.

What makes the ruling significant?

- More than a quarter century has elapsed since the Constitution was amended to make urban and rural local bodies a self-contained third tier of governance.
- But it is evident that there is inadequate devolution of powers to them.
- Their relative lack of autonomy is a key factor.
- On a different note, a key concern is the manner in which their representatives are elected.
- Notably, it is often beset by controversies.
- Local polls are often marred by violence, and charges of arbitrary delimitation and reservation of wards.
- A key factor in any local body polls being conducted in a free and fair manner is the extent to which the SEC is independent and autonomous.
- Unfortunately, most regimes in the States appoint senior bureaucrats from among their favourites to this office.
- So, in practice, SECs frequently face charges of being partisan.
- Routine exercises such as delimiting wards, rotating the wards reserved for women and SCs and fixing election dates become mired in controversy.
- This cannot be generalised in respect of all States and all those manning the position.
- However, it is undeniable that SECs do not seem to enjoy the confidence of political parties and the public.
- Seen in this context, the Supreme Court's recent ruling has significantly boosted the independence of SECs in holding local body elections.

2.5 CJI Remarks on Uniform Civil Code

What is the issue?

- Chief Justice of India (CJI) S A Bobde recently lauded Goa's Uniform Civil Code (UCC), and encouraged "intellectuals" indulging in "academic talk" to visit the state to learn more about it.
- In this backdrop, here is a look at UCC's status and the debate around it.

What is a Uniform Civil Code?

- A Uniform Civil Code is one that would provide for one law for the entire country.
- This would be applicable to all religious communities in their personal matters such as marriage, divorce, inheritance, adoption etc.
- Article 44 in Part IV of the Constitution lays down that the state shall endeavor to secure a UCC for the citizens throughout the territory of India.
- [Part IV deals with the Directive Principles of State Policy (DPSP).]
- But till date, no action has been taken in this regard.
- However, Goa has a Uniform Civil Code that applies in marriage and succession, governing all Goans irrespective of religious affiliation.

What is its status constitutionally?

- The DPSP, as defined in Article 37, are not justiciable (not enforceable by any court).
- However, the principles laid down therein are fundamental in governance.
- Article 44 uses the words "state shall endeavour."
- Other Articles in the DPSP chapter use words such as "in particular strive"; "shall in particular direct its policy"; "shall be obligation of the state" etc.

- Article 43 mentions “state shall endeavour by suitable legislation.”
- But, the phrase “by suitable legislation” is absent in Article 44.
- All this implies that the duty of the state is greater in other directive principles than in Article 44.
- **Fundamental Rights or Directive Principles** - Undoubtedly, Fundamental Rights are more important.
- The Supreme Court upheld this in the *Minerva Mills* (1980) case.
- Accordingly, the Indian Constitution is founded on the bed-rock of the balance between Parts III (Fundamental Rights) and IV (Directive Principles).
- So, to give absolute primacy to one over the other is to disturb the harmony of the Constitution.
- Article 31C, however, lays down that if a law is made to implement any DPSP, it cannot be challenged on the ground of being violative of the Fundamental Rights under Articles 14 and 19.
- [Article 31C was inserted by the 42nd Amendment in 1976.]

Does India have a uniform code in civil matters?

- Indian laws do follow a uniform code in most civil matters.
- These include the Indian Contract Act, Civil Procedure Code, Sale of Goods Act, Transfer of Property Act, Partnership Act, Evidence Act, etc.
- States, however, have made hundreds of amendments.
- So, in certain matters, there is diversity even under these secular civil laws.
- E.g. recently, several states refused to be governed by the uniform Motor Vehicles Act, 2019

How do personal laws work in the country?

- If the framers of the Constitution had intended to have a Uniform Civil Code, they would have given exclusive jurisdiction to Parliament in respect of personal laws.
- They could have done this by including the subject in the Union List.
- But “personal laws” are mentioned in the Concurrent List.
- Recently, the Law Commission too concluded that a Uniform Civil Code is neither feasible nor desirable.
- Notably, all Hindus of the country are not governed by one law, nor are all Muslims or all Christians.
- Not only British legal traditions, even those of the Portuguese and the French remain operative in some parts.
- In Jammu and Kashmir until August 5, 2019, local Hindu law statutes differed from central enactments.
- The Shariat Act of 1937 was extended to J&K a few years ago but has now been repealed.
- Muslims of Kashmir were thus governed by a customary law.
- This, in many ways, was at variance with Muslim Personal Law in the rest of the country and was, in fact, closer to Hindu law.
- Even on registration of marriage among Muslims, laws differ from place to place.
- In the Northeast, there are more than 200 tribes with their own varied customary laws.
- The Constitution itself protects local customs in Nagaland.
- Similar protections are enjoyed by Meghalaya and Mizoram as well.
- Even reformed Hindu law, in spite of codification, protects customary practices.

2.6 Supreme Court and Judicial Patriarchy

Why in news?

Recently Supreme Court issued a set of guidelines to be followed by the judiciary while dealing with sexual crimes against women.



Why the guidelines was issued now?

- Earlier in a virtual hearing of a case, CJI asked the alleged rapist's lawyer to find out whether his client would marry the victim.
- Later he mentioned that the statement was misquoted.
- Aftermath this incident, the apex court bench now asked all courts to refrain from imposing marriage or mandating any compromise between a sex offender and his victim.
- It also issued guidelines to be followed by the courts in dealing with sexual crimes against women in the verdict.

What was mentioned in the verdict?

- The Court leaned on the “**Bangkok General Guidance for Judges on Applying a Gender Perspective in Southeast Asia**”.
- It listed a host of stereotypes to be avoided in the verdict:
 - Women are physically weak;
 - Men are the head of the household;
 - Men must make all the decisions related to family;
 - Women should be submissive and obedient.
- It also mentioned a playwright of Henrik Ibsen which is known for courageous women characters who break the traditions of familial confines and notions of social propriety.
- It also used a quote from Ibsen that “woman cannot be herself in an exclusively masculine society, with laws framed by men”.
- The verdict acknowledges the bitter reality of women who are battling society's ingrained prejudices and said gender violence is mostly covered in a culture of silence.
- There is an entrenched unequal power equation between men and women in cultural and social norms, financial dependence, and poverty.
- This verdict will act as a guiding force for all future judicial proclamations.

What can we infer from this?

- It is not the first time the Supreme Court is clamping down against gender stereotyping.
- In **Ministry of Defence vs. Babita Puniya** case, the court argued against treating women in the Army any differently from their men counterparts for they worked as equal citizens.
- The Court had called out the notion of romantic paternalism as an attempt to put women in a cage.
- Individuals, institutions and those in important positions must take responsibility to break the silence on bias against women.
- The Court's verdict is a move in the right direction in fighting against gender inequality.

2.7 Electoral Bonds Scheme

Why in news?

Recently Supreme Court refused to stay the sale of electoral bonds ahead of Assembly elections.

What is the issue with Electoral Bond scheme?

- It is a promissory note which can be bought by any Indian citizen or company incorporated in India from select branches of SBI which can be donated to any eligible political party.
- In India, for the last three years, electoral bonds have become the dominant method of political party funding.
- It allows for limitless and anonymous donations to political party which means that well-resourced corporations can buy politicians by paying immense sums of money.
- Since the donations are routed through the SBI, it is possible for the government to find out who is donating to which party.

- It becomes a very effective way to squeeze donations to rival political parties.

Why transparency in political funding is required?

- If democracy has to thrive, the role of money in influencing politics ought to be limited.
- Across the Democratic societies, it has been proven that money is the most effective way of buying policy and it skews the playing field towards one parties' favour.
- When citizens are unable to find the source of funds for the political parties, it denies them the right to know the complete information of candidate contesting in the election.
- Moreover Supreme Court held that right to know, especially in the context of elections, is an integral part of the right to freedom of expression.
- By keeping this knowledge from citizens and voters, the electoral bonds scheme violates core principles of the Indian Constitution.
- In many advanced countries, elections are funded publicly and principles of parity ensure that there is no big resource gap between the ruling party and the opposition.
- In countries where elections are not publicly funded, there are caps on financial contributions to political parties.
- This guarantees a somewhat level playing field among the political parties.
- But the government justifies the scheme by arguing that it prevents the flow of black money into elections.

Why Judiciary needs to act now?

- One of the most critical functions of an independent judiciary in a functioning democracy is to referee the fundamentals of the democratic process.
- Governments derive their legitimacy from elections and it is elections that grant governments the mandate to pursue their policy goals.
- The electoral legitimacy of the government is questionable if the electoral process has become questionable.
- Since the government itself cannot regulate the process, the courts remains as the only independent body that can adequately enforce the ground rules of democracy.
- Hence courts must be sensitive to and cognisant of laws and rules that seek to skew the democratic process and the level playing field.

What can we infer from this?

- It is unclear that how donor anonymity, limitless donations prevents the flow of black money.
- Since this scheme allows foreign source funding to political parties, the prospects of institutional corruption increases.
- It is clear that the objection to the scheme is not objections rooted in political morality but they are constitutional objections.
- The right to know has long been enshrined as a part of the right to freedom of expression.
- Moreover no cap in political donations violates the principle of equality before law and creates arbitrariness in the election process.
- Thus, the electoral bonds scheme deserves to be struck down by the courts as unconstitutional.

3. GOVERNMENT ACTS & POLICIES

3.1 India's IT Rules 2021

Why in news?

The central government has recently released the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021.

What is the objective?

- The guidelines aim to regulate social media, digital news media, and over-the-top (OTT) content providers.
- They were released following the instructions from the Supreme Court and the concerns raised in Parliament about social media abuse.
- The government wanted to create a level playing field in regulating online news and media platforms vis-à-vis traditional media outlets.
- The Rules also seek to -
 - i. empower the ordinary users of digital platforms to seek redressal for their grievances
 - ii. command accountability in case of infringement of users' rights
- The guidelines related to social media will be administered by the Ministry of Electronics and IT.
- The Digital Media Ethics Code relating to Digital Media and OTT Platforms will be administered by the Ministry of Information and Broadcasting.

Why now?

- The government had been working on these guidelines for over 3 years.
- The immediate push came in the form of the violent incidents at the Red Fort on January 26, 2021.
- Following this, the government and Twitter had disagreements over the removal of certain accounts from the social media platform.

What are the key provisions related to social media?

- **Social Media Intermediaries** - Social media intermediaries are platforms that host user-generated content.
- E.g. Twitter, Facebook, YouTube, WhatsApp
- The Rules create two Categories of Social Media Intermediaries which are:
 1. social media intermediaries
 2. significant social media intermediaries
- This is to encourage innovations and enable growth of new social media intermediaries without subjecting smaller platforms to significant compliance requirement.
- The distinction is based on the number of users on the social media platform.
- Government is empowered to notify the threshold of user base for these categories.
- The Rules require the 'significant social media intermediaries' to follow certain additional due diligence.
- **Due diligence** - Section 79 of the IT Act provides a "safe harbour" to social media intermediaries.
- It exempts them from liability for the actions of users if they adhere to government-prescribed guidelines.
- The new guidelines prescribe an element of due diligence to be followed by the intermediary.
- Failing this would mean that their safe harbour provisions would cease to apply.
- **Grievance redressal** - The Rules mandates that the intermediaries, including social media platforms, should establish a mechanism for receiving and resolving complaints from users.
- These platforms will need to appoint a grievance officer to deal with such complaints.
- The officer must acknowledge the complaint within 24 hours, and resolve it within 15 days of receipt.
- In addition to a grievance officer, social media platforms will have to appoint a chief compliance officer resident in India.
- The chief compliance officer will be responsible for ensuring compliance with the rules.
- The platforms will also be required to appoint a nodal contact person for 24x7 coordination with law enforcement agencies.
- Further, the platforms will need to publish a monthly compliance report.

- This should have details of -
 - complaints received and action taken on the complaints
 - contents removed proactively by the significant social media intermediary
- The due diligence requirements will come into effect after 3 months from the notification of the rules.
- **Removal of content** - The rules lay down 10 categories of content that the social media platform should not host.
- **Penalties for violation** - In case an intermediary fails to observe the rules, it would lose the safe harbour, and will be liable for punishment.

How do the Rules benefit?

- The need for the IT Rules can hardly be disputed.
- They make accountable the “significant” internet platforms (those above 5 million users) such as Facebook, Google and WhatsApp.
- These have so far enjoyed immunity under Section 79 of the Information Technology Act under the ‘safe harbour’ clause.
- The world over, these tech giants have been associated with breach of data, national security and individual privacy.
- Besides, they have hosted incendiary stuff that can disrupt peace and harmony.
- Secondly, the OTT platforms such as Amazon Prime, Netflix and Hotstar, which carry curated content without certification can no longer continue in this manner.
- In a positive move, they will have to grade their content under various types of adult and child viewing.
- They will also have to adhere to the grievance redressal mechanisms.
- These checks and balances are necessary and go a long way in streamlining the content.

What are the concerns?

- **Free speech** - The rules force digital news publishers and OTT services to adhere to a cumbersome three-tier structure of regulation.
- It comes with a government committee at its apex.
- This, in itself, is unprecedented in a country where the news media have been given the space all along to self-regulate.
- This has been in place based on the understanding that any government presence could have an effect on free speech and conversations.
- The rules might have serious implications for freedom of expression and right to information of online news publishers and intermediaries.
- **Regulation** - Any person having a grievance regarding content published by a publisher in relation to the Code of Ethics may furnish his/her grievance.
- The grievance mechanism established by the publisher will receive them.
- So, literally anyone could force a digital platform to take up any issue.
- To note, many of the digital publishers are small entities.
- The regulations thus impose a compliance burden on such entities.
- Moreover, the Rules allow government to influence the appointment of panel members in the higher level regulatory bodies.
- All these leaves way for all kinds of interventions, and the potential for misuse is enormous.
- **Social media platforms** - The new rules have increased the compliance burden for social media platforms too.

- Such platforms in the messaging space will have to “enable the identification of the first originator of the information on its computer resource” based on a judicial order.
- Thus, the rules require messaging apps such as WhatsApp and Signal to trace problematic messages to the originator.
- The triggers for a judicial order that require such an identification are serious offences.
- Nevertheless, it raises concerns as these apps have their messages encrypted end-to-end.
- **Classification** - Digital news media has been unfairly and arbitrarily clubbed with OTT platforms and subjected to the same set of rules.
- Moreover, the purview of the IT Act, 2000, has been expanded to bring digital news media under its regulatory ambit without legislative action.
- This combination does not correspond with the provisions of the IT Act, and opens itself to legal challenge.
- Also, the new rules pertain only to digital news media, and not to the whole of the news media.
- This raises concerns as the former is increasingly becoming a prime source of news and views.

3.2 Mines and Minerals (Development and Regulation) Amendment Bill, 2021

Why in news?

Coal and Mines Minister introduced the Mines and Minerals (Development and Regulation) Amendment Bill, 2021 in Lok Sabha.

What are the key changes?

- **Sale** - The amendment proposes to allow captive miners of both coal and other minerals to sell up to 50% of their production.
- This is allowed after meeting the requirements of the end-use plant and on paying additional royalty to the state government.
 - Operators are currently only allowed to use coal and minerals extracted from captive mines for their own industrial use.
- The increased flexibility would allow miners to maximise output from captive mines.
- They would be able to sell output in excess of their own requirements.
- **Additional royalty payments** - The Bill proposes to fix additional royalty payments to states for the extension of mining leases for central public sector enterprises.
 - There were disagreements over the additional royalty to be paid by state-owned NMDC to the Karnataka government.
 - This was over the extension of mining rights at the Donimalai mine.
 - The issue led to NMDC suspending operations at the mine for over two years.
 - NMDC recently resumed operations after an interim agreement on the additional royalty to be paid to the Karnataka government.
- It is anticipated that the state governments would object to the fixing of an additional royalty to be paid by CPSEs for such extensions.
- This is because it may lead to lower revenues compared to a transparent auction process.
- **Auctions or re-auction processes** - The Bill aims at streamlining the renewal of the auction process for minerals and coal mining rights.
- It proposes to empower the central government to conduct auctions or re-auction processes for the grant of a mining lease.
- This is only in case if a state government fails to complete the auction process in a specified period.
- The period will be decided after consultations between the Centre and state.
- Industry players may welcome the move as it would likely lead to greater transparency in the auction process.

- This is significant because there is a perception that state governments might in some cases prefer some bidders.
- They may even try to delay or cancel mining rights if their preferred bidders do not win mining rights.

Could there be a legal challenge?

- The amendment, if passed, is likely to face legal challenges.
- The Bill in a way seems to take away the state government's discretionary power and their rights or benefits seems to be infringed.
- It is thus likely to be challenged in the Supreme Court, especially in the case of state governments where there is an Opposition party in power.

3.3 Places of Worship (Special Provisions) Act

Why in news?

Recently, Supreme Court asked the Centre to respond to a plea challenging the Places of Worship (Special Provisions) Act, 1991.

What is the law about?

- The law seeks to maintain the religious character of places of worship as it existed on the 15th day of August, 1947 except in the case of Ram Janma bhoomi-Babri Masjid dispute.
- Sections 4 of the Act declare that no person shall convert any place of worship of any religious denomination into one of a different denomination or section.
- Section 4(2) says that all suits, appeals or other proceedings regarding converting the character of a place of worship, that were pending on August 15, 1947, will stand abated.
- The above provision is applicable from the date on which this act commences and fresh proceedings cannot be initiated from then.
- However, legal proceedings can be initiated with respect to the conversion of the religious character of any place of worship after the commencement of the act i.e. after August 15, 1947.

What does the law say about Ayodhya?

- Section 5 mentions that the act is not applicable to Ram Janma Bhumi Babri Masjid and to any suit, appeal or other proceeding relating to the said place or place of worship.
- Besides the Ayodhya dispute, the act also exempts:
 - Any place of worship that is an ancient and historical monument or an archaeological site or is covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958;
 - A suit that has been finally settled or disposed of;
 - Any dispute that has been settled by the parties or conversion of any place that took place by acquiescence before the Act commenced.

What has the Supreme Court said about the Act?

- In the 2019 Ayodhya verdict, Supreme Court said the law manifests the secular values of the Constitution.
- It says that the act provides confidence to every religious community that their places of worship will be preserved and their character will not be altered.
- It says that the norms bind those who govern the affairs of the nation at every level.
- And these norms seek to implement the Fundamental Duties under Article 51A and it gives a positive mandates to every citizen.
- The court also mentioned that State has enforced its constitutional commitment and operationalised its constitutional obligations of upholding the equality of all religions and secularism ideology.

Why was the law challenged?

- It was challenged on the ground that it violates the principle of secularism.

- The petition said that the cut-off date of August 15, 1947 is arbitrary, irrational and retrospective.
- It prohibits Hindus, Jains, Buddhist, and Sikhs from approaching courts to re-claim their places of worship which were encroached by invaders.
- Moreover it indicates that Centre has no power to legislate provisions of State list- pilgrimages or burial grounds.
- But the centre replied that it could make use of its residuary power under **Entry 97 of the Union List** to enact this law.
- Entry 97 confers residuary powers to the Centre to legislate on subjects that are not enumerated in any of the three lists.
- The petition highlights the fact that since the cut-off date for the law is the date of Independence, the status quo determined by the colonial power will be considered as final.
- This another major criticism against the law.

3.4 Vehicle Scrappage Policy

Why in news?

Recently Ministry of Transport announced the vehicle scrappage policy for age old vehicles.

Why new policy is needed?

- India's automobile ecosystem is complex where fossil-fuel driven vehicles dominate and there is only a nascent EV segment.
- Heavy commercial vehicles contribute disproportionately to pollution and about 1.7 million vehicles lack fitness certificates.
- Moreover the amended Motor Vehicles Act of 2019 met with limited success in its enforcement.

What are the features of vehicle scrappage policy?

- Customers will get a scrap value which is 4-6% of ex-showroom price of a new vehicle.
- State governments can offer a road tax rebate of up to 25 % for personal vehicles and up to 15% for commercial vehicles.
- Vehicle manufacturers can provide a discount of 5% on purchase of new vehicle against the scrapping certificate.
- The registration fees may be waived for purchase of new vehicle against the scrapping certificate.
- Old vehicles have to undergo a mandatory automated fitness test, if not they will be deregistered.
- Vehicles that would be automatically scrapped are:
 - a) 15 year plus government & PSU-owned vehicles;
 - b) those damaged in fire, riots or any devastation;
 - c) declared as defective by manufacturers;
 - e) those confiscated by enforcement agencies.

What are the positive outcomes of this policy?

- The policy aims to create more economic benefits, cleaner environment and thousands of jobs opportunities.
- It will reduce the population of old and defective vehicles, reduce vehicular air pollutants and improve road - vehicular safety.
- Besides it will achieve better fuel efficiency, formalise the informal vehicle scrapping industry and boost the availability of low-cost raw materials for the automotive, steel and electronics industry.
- It will also make India the world's largest automobile hub in the next 5 years.



What are the issues in this policy?

- It will take around 2024 to identify vehicles belonging to the government and the public sector through mandatory fitness checks and get scrapped.
- States need to cooperate to put a credible system of automated fitness checking centres and come on board to provide concessions in road tax and registration.
- It is challenging to scrap the unfit vehicles and stop them from moving to smaller towns.
- It is difficult to ensure that the scrapping plan gets the support from the manufacturers.
- Scrapped vehicles cannot be replaced quickly in the absence of financial arrangements for small operators.

4. SOCIAL JUSTICE

4.1 Supreme Court's Unwelcome Remarks

What is the issue?

- The Supreme Court has asked a man whether he would marry the woman who had accused him of raping her when she was a minor.
- The Court's remarks and decision has drawn criticism from various circles for setting a wrong precedent in terms of women's rights.

What is the case?

- The apex court was hearing a bail request of a government employee, one Mohit Subhash Chavan.
- He is an employee at the Maharashtra State Electric Production Company.
- He has been accused of raping repeatedly a schoolgirl.
- He faces charges under the POCSO (Protection of Children from Sexual Offences) Act and had sought protection from arrest.
- Chavan reportedly told the Supreme Court that his mother had "offered marriage" with him to the victim when she went to police.
- Although she had initially refused, a document was reportedly drawn up (it is not clear as to between whom).
- In it, Chavan had promised marriage with the minor victim when she turns 18.
- The petition filed by Chavan says that when he refused to marry her once she turned 18, she filed the case.

What has the Court said?

- The Chief Justice of India S.A. Bobde had asked if he would be willing to marry her now.
- The Court also said that if he was not willing to marry, then he would lose his job and go to jail.
- The accused later reportedly told the court that he could not marry her as he was already married.
 - "Initially I wanted to marry her. But she refused. Now I cannot as I am already married."
- Chavan stressed that he was a government servant and would face automatic suspension if charges are framed against him.
- To this, the Court said, "That's why we have given you this indulgence. We will stay the arrest for four weeks. Then you apply for regular bail."
- Chavan had earlier been granted protection from arrest by a trial court but that had been quashed by the high court.

What has the court remarked in another similar case?

- In another case, the Bench stayed the arrest of a man accused of rape after falsely promising marriage.
- The victim said she was promised marriage and was "brutally and sexually abused".

- The CJI asked the girl's lawyer:
 - "When two people are living as husband and wife, however brutal the husband is, can you call sexual intercourse between them 'rape'?"

Why are these unwelcome?

- A relationship between two individuals, including marriage, is built around love, respect, trust and consent.
- A violent and exploitative act like rape has certainly no place within this civilised framework.
- The bottom line is that rape is the worst form of crime that violates a woman's body, mind and soul.
- Clearly, the perpetrator has to be awarded deterrent punishment.
- He cannot be incentivised by giving legal sanction to a gruesome act by allowing such marriages.
- By offering marriage as a solution to a rape victim, the judiciary fails to protect the rights of a girl.

What are the available legal provisions?

- In both cases, the crimes attract severe penalties under the Criminal Law (Amendment) Act, 2013.
- On marital rape, the recommendation was not included in the Act.
- But, the Justice J.S. Verma Committee was clear that the law ought to specify that -
 - a marital or another relationship between the perpetrator and victim cannot be a defence against sexual violation
- The idea is that 'a rapist remains a rapist regardless of the relationship with the victim'.
- In a 2013 case (Shimbu & Anr vs State Of Haryana), the Supreme Court itself had come down heavily against the practice.
 - The Court said the offer of a rapist to marry the victim cannot be used to reduce the sentence prescribed by law.

4.2 Deficit in OBC, SC Positions Vacant at IIMs

Why in news?

Union Education Minister Ramesh Pokhriyal Nishank's response in Lok Sabha revealed a severe deficit in the number of OBC, SC, ST candidates recruited as faculty in Central institutes of higher education.

What does data on vacant positions show?

- **Institutes** - More than half of the faculty positions reserved for OBCs in central institutions of higher education are vacant.
- About 40% of those reserved for Scheduled Castes and Scheduled Tribes also remain unfilled.
- The situation is particularly acute in the elite Indian Institutes of Management (IIMs).
 1. More than 60% of SC and OBC reserved positions are vacant.
 2. Almost 80% of positions reserved for STs have not been filled.
 3. This means that out of 24 positions reserved for STs, only five have been filled.
- For the Indian Institutes of Technology (IITs), data has only been provided for non-faculty positions.
- To note, both IITs and IIMs have been lobbying for exemption from such faculty quota requirements.
- **Positions** - Within the Central Universities, vacancies are higher at the level of professors.
- Out of 709 assistant professor positions reserved for STs at the 42 universities, more than 500 have been filled.
- However, when it comes to professors, only nine positions have been filled out of the 137 reserved for ST candidates.
- This means 93% of these posts remain unfilled.
- Less than 1% of the 1,062 professors in central universities are from ST communities.

- Similarly, 64% of the 2,206 assistant professor positions reserved for OBCs have been filled in the Central Universities.
- However, less than 5% of the 378 professor positions reserved for OBCs have been filled.

What is the government's response?

- After the implementation of 'The Central Educational Institutions (Reservation in Teachers' Cadre) Act, 2019', the OBC reservation has been implemented at all levels.
- The Ministry of Education and University Grants Commission (UGC) continuously monitor the vacancies.
- The onus of filling up the teaching posts lies on Central Universities which are autonomous bodies created under Acts of Parliament.
- In fact, in June 2019, UGC had written to all Universities, giving them a six month deadline to fill up their vacancies.
- The government also issued a warning that grants would be withheld if its directions were violated.
- According to the data presented in the Lok Sabha, there are now 6,074 vacant positions at the 42 universities.
- Of this, 75% are in the reserved categories.

What are the recommendations made in this regard?

- In the case of the IITs, an official committee suggested that the way out would be to exempt these institutions from reservation.
- This option is provided for under the Central Educational Institutions (Reservation in Teachers' Cadre) Act, 2019.
- Another suggestion is to dereserve lower faculty positions after a year, if suitable candidates from the beneficiary communities are not found.
- But this cannot be the right course for official policy, as reservations system is widely seen as the shortest path to equality and equity.

4.3 Women's Unpaid Work

Why in news?

Recently various political parties are promising wages to women for their unpaid household chores in their election manifestos.

How vulnerable are the women?

- Women everywhere carry a disproportionately higher burden of unpaid work for their domestic services including the unpaid care of children, old and disabled.
- Their work is repetitive, boring and a 24-hour job without remuneration, promotions or retirement benefits.
- They do this job not because they like it or are efficient in it, but because it is imposed on them by patriarchal norms- root of all pervasive gender inequalities.
- It restricts opportunities for women in the economy and in life.
- Though this work contributes to overall well-being at the household level and at the national level, it is invisible in the national database and in national policies.
- So political parties promise wages for their unpaid household chores.

What is the issue in this?

- The implementation of providing monthly wages may create problems such as affordability of the government and calculation of the amounts.
- Women may not be eager to enter the labour market and deny them opportunities to the wider world.
- More importantly, these wages may confirm unpaid work as women's work only.



What can be done?

- Governments can recognise this unpaid work in the national database by a sound time-use survey and use the data in national policies.
- It could relieve women's burden by improving technology, better infrastructure), shifting some unpaid work to the mainstream economy & making basic services accessible to women.
- It could also redistribute the work between men and women by providing different incentives and disincentives to men.
- This includes mandatory training of men in housework, childcare etc. and financial incentives for sharing housework.
- These measures will give free time to women and open up new opportunities to them.
- Payment of pension to old women (60+ years) may be a better idea to compensate them for their unpaid work.

What is link between unpaid work and economy?

- The household produces goods and services for its members and GDP is a measure of the total production and consumption of the economy.
- Hence GDP has to incorporate this household work by accepting it as a sector of the economy.
- This unpaid work subsidises the private sector by providing it a generation of workers and takes care of wear and tear of labour who are family members.
- Unpaid work also subsidises the government by taking care of the old, sick and the disabled.

What can we infer from this?

- Unpaid work is a privately produced public good which is critical for the sustenance of the mainstream economy.
- It needs to be integrated with the mainstream economy and policies which can help in improve their productivity, reduce their burden and tap their potential in development process.
- Excluding this work from the mainstream economy indicates a clear male bias.
- There is an urgent need to expand the purview of economics not only for gender justice but for moving towards a realistic economics.

5. GOVERNANCE

5.1 Spectrum Auctions

Why in news?

Recently Spectrum auctions ended with bids worth Rs 77,815 crore.

What are the details about this spectrum auctions?

- Out of the total 2,308.8 MHz offered, 855.6 megahertz was successfully bid.
- The largest telecom services providers optimised their purchases of radio spectrum and acquired only what they deemed as essential airwaves for renewing and strengthening their network.
- They entirely avoided costlier bandwidth offerings.
- Reliance Jio- new entrant -was the most acquisitive, accounting for close to 60% of the spectrum and contributed to almost three-fourths of Rs 77,815 crore which was garnered from the sale.

What are the drawbacks in this auction?

- Due to the COVID-19 pandemic and the high level of indebtedness in the industry, the government appears to have moderated its expectations to a more realistic level.
- In a repeat of the 2016 auctions, the significantly more efficient 700 MHz was yet again avoided by all bidders due to its prohibitive reserve price.

- It is a valuable resource for accelerating the digitisation of the economy which includes broadening and deepening the digital delivery of public services to India's far places.
- It is also considered as ideal for enhancing network availability in the densely built-up cities where there is an issue of poor signal penetration.

What are the takeaways from this?

- Reduced number of players in spectrum bidding, its unrealistic price, government's regulatory norms and tax practices are affecting the telecom sector badly.
- The telecom authorities need to analyse the entire policy framework in order to find out the uncertainty prevailing in the industry.
- They must act quickly to ensure this does not end up hurting the sector further as this sector has become a key multiplier of economic empowerment and progress.

5.2 No Back-Door Pact for Defaulting Promoters

Why in news?

Recently, Supreme Court barred the promoter from bidding for his company which is undergoing insolvency proceedings.

What is the history of the case?

- In April 2017, the promoter of Gujarat NRE Coke Company voluntarily admitted the company under insolvency proceedings and submitted a resolution plan.
- But government inserted Section 29A in the IBC retrospectively making the promoter ineligible for bidding the company.
- In 2018, NCLT ordered the liquidation of Gujarat NRE Coke but the promoter moved against the order mentioning the Section 230 of Companies Act of 2013.
- This application was allowed by the NCLT through its order but Jindal Steel and Power (JSPL) filed appeal in NCLAT against this order.
- NCLAT upheld JSPL's petition and denied the promoter from participating in the liquidation process.
- Following this, the promoter filed an appeal in SC.

What was the Supreme Court ruling?

- The apex court said that Section 230 of the Companies Act will be applicable for the promoters and creditors in normal course of the workings of the company.
- **Section 230 of the Companies Act** allows a defaulting company to enter into a compromise with the creditors for restructuring the debt of the company.
- But this section is not applicable if the company is facing liquidation under Section 29A of IBC.
- **Section 29A of IBC** bars the promoters of insolvent companies from bidding their own companies.
- Hence Section 230 of the Companies Act cannot be used for gaining control of their company if it goes into liquidation.
- So it becomes necessary to read both the sets of provisions in harmony.

What are the implications of this verdict?

- Any other interpretation of Section 29A of the IBC act would have defeated the objective of barring the promoter in the resolution and liquidation processes of the company.
- This verdict by the apex court will speed up the resolution process and maximise the asset value of the company.
- It also settles down the conflicting judgments given by different benches of the National Company Law Tribunal wherein promoters were allowed to re-bid for the company.



5.3 Supreme Court on National Environmental Regulator

Why in news?

The Supreme Court has asked the government to explain why it had not set up an “independent environment regulator” under the Environment (Protection) Act, 1986 to oversee green clearances.

Why is the delay?

- The official policy prioritises ease of doing business.
- There is thus no consensus on what a new regulator can achieve.
- The draft Environmental Impact Assessment (EIA) Notification 2020 too seeks to advance that goal.
- It is much in line with virtually eliminating the civil society’s role in environmental clearance.
- It does not encourage the public to voice its views and report violations, while independent scrutiny of proposals is weakened.

What are the shortfalls in EIA process?

- A key issue raised by the PIL is the lack of credibility of the EIA process.
- This is leaving way for reports that are often produced with the help of dubious expertise and manipulated data.
- The EIA process, especially after the notification in 2006, has been heavily critiqued for conflicts of interest.
- Under it, the proponent of a project herself/himself is responsible for producing the EIA report.
- In most cases, the proponents ignore the views of communities that would be displaced.
- They are ill-equipped to assess the loss of biodiversity and ecosystem services such as clean air, water and farm productivity.
- Clearances under forest, wildlife, air and water quality laws are heavily weighted in favour of promoters.
- The Centre has not taken any substantial move to set an independent regulator despite court’s interventions in 2011 and 2014.
- The current PIL is forcing the government to come up with a fresh explanation on the delay year after year.

What are the implications?

- Polluting projects make way for conflict arising from pressure on scarce land and ecosystems.
- Such projects have already created clusters of industrial locations that are doing badly on the CPCB’s Comprehensive Environmental Pollution Index.
- But this did not stop approvals for further polluting activity in some of these places.
- Other issues are the slow pace at which multiple departments process project proposals.
- This raises the transaction costs and results in the clamour to dispense with regulation.

6. INDIA & ITS NEIGHBORHOOD

6.1 Peace Process in Afghanistan

What is the issue?

- Afghan social media and political circles have learnt of a policy review in the U.S. which intends to fully withdraw all U.S. military forces from Afghanistan as early as May 1, 2021.
- The peace process in Afghanistan has reached a critical turning point with this, and here is a look at its various aspects.

What are the recent developments in this regard?

- The former U.S. President Barack Obama announced the exit of U.S. forces from Afghanistan.



- More recently, the [Doha Agreement](#) was concluded between the U.S. Government and the Taliban.
- Despite the Doha Agreement, the Taliban has not ended its ties with the al-Qaeda and other similar terrorist groups.
- Nor have intra-Afghan negotiations progressed.
- The policy review now ordered by the U.S. President Joe Biden is a critical point but it is kept confidential.

What is Biden's stance?

- Mr. Biden has long held, even as Vice-President, that Pakistan is strategically more important to the U.S. than Afghanistan.
- He has held that the U.S. troops should be pulled out of the Afghan battlefield as soon as possible.
- Donald Trump was doing nothing different from his predecessor.
- The ongoing review had raised hopes in Kabul of a turnaround in U.S. policy. That is not happening in substance.

What is the U.S.'s plan?

- The U.S. Government is advocating 'a new, inclusive government' in Afghanistan.
- This implies an immediate 50% share for the Taliban in an interim government.
- This is in return for a permanent and comprehensive ceasefire.
- This will be without reference to a mandate from the people.
- That is because elections will be held only in the future, after the principles guiding Afghanistan's future constitutional and governing arrangements are worked out.
- As a prelude to the ceasefire, the U.S. has proposed to the Taliban to reduce violence for 3 months.

What are the challenges?

- The U.S. maintains that its objective is to bring about a just and durable peace through political negotiations.
- It intends to achieve this in a manner that Afghanistan remains united, sovereign, and democratic, and preserves the gains made over the past two decades.
- However, this is a tall order, as it contradicts the abiding U.S. priority, to cut its losses and be out of Afghanistan at the earliest.
- The challenge for the U.S. is that it cannot disengage from Afghanistan without accepting Pakistan's terms.
- These terms would not be acceptable to Afghan patriots who want freedom for Afghanistan to choose its political direction.
- If training, combat support, and the supply of weapons are stopped from Pakistan, the Taliban could surrender.
- The U.S. Government is wary of Pakistan's negative role.
- Instead of pressuring Pakistan, it is seeking Afghan acquiescence for a power-sharing arrangement with the Taliban, enabling the exit of U.S. soldiers.

How is India-Afghan relations?

- India remains fully committed to Afghanistan and supporting state institutions there.
- Despite the policy changes there, bilateral relations are flourishing.
- There have been frequent and productive high-level exchanges between Indian and Afghan leaders.
- India is to be part of the future consultation process on Afghanistan.
- It has expanded its development partnership, worked with all communities across the country, and asked leaders of all Afghan ethnicities to remain together.
- That policy has been well-received by most of the Afghan people and government, and it has served India well.



6.2 Unacceptable Act of India

What is the issue?

The people of Myanmar are pleading with the international community to support them against human rights violations.

What is happening in Myanmar?

- In early February, Myanmar military illegally overthrew the civilian government and attacked the people who are conducting protest against the military dictatorship.
- Peaceful protestors were killed, murdered, assaulted and arbitrarily detained who are coming to India as refugees.
- Now Indian government is planning to detain and deport them back to Myanmar.

Who are refugees?

- Refugee is someone who has been forced to flee his or her country because of persecution, war or violence.
- There is a customary international law norm of non-refoulement which means no State can send individuals back to a situation of danger, which is clearly the case in Myanmar.
- Non-refoulement principle applies to all countries irrespective of whether they signed or not.

What was India's response?

- On the one hand, India is supporting those who advocate for democracy in Myanmar & made supportive statements in UNSC and UNHRC.
- On the other hand, Indian government is simultaneously detaining and preparing to deport Rohingya refugees to Myanmar.
- It labelled refugees as infiltrators and said that they cannot be considered as refugees since India has not signed the UN Refugee Convention.
- Moreover Ministry of Home Affairs issued an order to the Border States to check the illegal influx from Myanmar to India.
- The office of the UN High Commissioner for Refugees in India was denied access to individuals detained in Delhi.

What was the International action towards this?

- UN and various states are voicing against the atrocities committed by Myanmar on the peaceful protest conducted by people.
- Independent Investigative Mechanism for Myanmar (IIMM), an UN established body created in 2011 with a mandate to investigate cases of international crimes committed in Myanmar.
- It issued a public call to security personnel to reach out and provide information regarding illegal orders and policies.
- International legal proceedings are initiated by countries like Gambia, Canada, Netherlands and Maldives in the International Court of Justice w.r.t the violation of Genocide Convention.
- Simultaneously, the Prosecutor of the International Criminal Court is investigating international crimes against the Rohingya.
- These international legal proceedings are indications of the seriousness and gravity of the crimes against the Rohingya which India should heed to.
- The Rohingya are refugees who have fled years of atrocities and a genocidal campaign and must not be sent back to Myanmar where their lives are in certain danger.
- India must shelter these individuals and allow for IIMM access, indicate its willingness to cooperate in these international investigations.

6.3 India-Taiwan ties

Why in news?

Recently India and Taiwan are celebrating 25 years of their partnership.

What are the existing areas of cooperation?

- Both the countries have deepened the mutual respect which is underpinned by openness, democracy.
- They recognise diversity as the key principles for collective growth and share faith in freedom, human rights, justice and rule of law.
- India and Taiwan already collaborate in the area of traditional medicine.
- India's has been in the forefront in fighting against COVID-19 and Taiwan's handling of the pandemic and its support to other countries underlines the need to deepen cooperation in healthcare.
- Now both countries can expand cooperation in the field of healthcare.

How can Taiwan support India?

- Indian government is facing the huge challenge of maintaining air quality and stubble burning is an important reason for this.
- Taiwan could be a valuable partner in dealing with this challenge through its bio-friendly technologies.
- Such technologies can convert agricultural waste into value-added and environmentally beneficial renewable energy or biochemicals.
- This will help in dealing with air pollution and also enhances farmers' income.
- Further, they can undertake joint research and development initiatives in the field of organic farming.

What are the other areas that both countries can cooperate?

- Cultural exchange is the cornerstone of any civilisation exchange and India and Taiwan can deepen people-to-people connection.
- This will appreciate another culture and helps in overcoming prejudices and cultural misunderstanding.
- Tourism is another key tool in civilisation exchange and there are small numbers of Taiwanese tourists arriving to India.
- To accelerate the flow of Taiwanese tourists, connectivity in Buddhist pilgrimage can be strengthened in addition to showcasing India's incredible diversity.
- Taiwan Tourism Bureau partnership with Mumbai Metro can raise awareness about Taiwan and increase the inflow of Indian tourists.

How can economic ties be deepened?

- In 2018, both the countries signed a bilateral trade agreement in which was an important milestone in trade relations.
- India has a huge market which provides Taiwan a huge investment opportunity.
- Taiwan's is the world leader in semiconductor and electronics which can complement India's leadership in ITES (Information Technology-Enabled Services).
- There are around 200 Taiwanese companies in the field of electronics, construction, petrochemicals, machine, ICT and auto parts operating in India.
- Despite the huge potential, Taiwan investments have been meagre in India due to dismaying regulatory and labour regime.
- But India's recent strides in the ease of business ranking will provide Taiwan with lucrative business opportunities and mitigate its over-dependence on one country for investment opportunities.
- Policymakers can coordinate with the business community to help them in navigating the regulatory landscape for better ties.
- To make this relationship more meaningful, both sides can create a group of empowered persons to chart out a road map in a given time frame.

7. INTERNATIONAL ISSUES

7.1 Ending the War in Yemen

What is the issue?

- As one of the first key foreign policy decisions, U.S. President Joe Biden decided to end the U.S.'s support for Saudi Arabia's six-year-long war on Yemen.
- In this backdrop, here is a look at the course of the war over the years and the possible options for an end.

What are Biden's recent decisions?

- Biden halted weapons sales to Saudi Arabia.
- He appointed a Special Envoy for Yemen.
- He also removed the Shia Houthi rebels from the list of foreign terrorist organisations.
 - Shia Houthi rebels control the north-western parts of Saudi Arabia.
- Both former Presidents Barack Obama and Donald Trump looked away from Yemen.
- Yemen was notably amidst a [multipolar civil war](#) and [Saudi bombing](#).
- It descended into chaos and witnessed a humanitarian catastrophe.

What is the war in Yemen all about?

- Saudi Arabia, the UAE and their allies went to Yemen in March 2015.
- They had clearly defined objectives to -
 - i. drive the Houthi rebels, who are backed by Iran, out of the capital Sana'a
 - ii. stabilise the country under the government of Abdrabbuh Mansur Hadi that they support
- The Saudi-led coalition imposed a blockade on Yemen.
- They hoped this would eventually weaken the Houthis.
- They also started a bombing campaign aimed at wrecking the rebels militarily.
- This campaign was however a failure.

How is it evolving?

- The 6 years of war prove that the Saudi strategy of blockade and bombing was a failure.
- The Houthis continued to amass weapons, even technologically advanced drones.
- They continue to use these to attack Saudi targets across the border, despite the blockade.
- The Houthis entrenched themselves in the north-west despite the military and economic challenges.
- The only success for the Saudis, seen tactically, was that the Houthis were limited to the north-west.
- But the Saudi-backed government failed to consolidate its position even in the south.
- A separatist group, the Southern Transitional Council (STC), has established its rule in southern Yemen.
- The UAE, which backs the STC, has pulled out of the Saudi-led coalition.
- All this is happening while the humanitarian situation in Yemen is worsening by the day.
- The war has killed over 10,000 people.
- It has pushed the country to the brink of a famine.
- According to the UN, 50,000 Yemenis are starving to death and 16 million will go hungry in 2021.
- They are depending on food assistance to survive.
- But the war is making it difficult for aid groups to operate in the country.

- Many more are dying due to preventable diseases.
- Yemen already lacks proper health infrastructure and essential medicines.

What should the priority now be?

- The crisis in Yemen is not only about the Saudi-Houthi conflict.
- It has many more dimensions such as humanitarian, civil, geopolitical and sectarian issues.
- Finding a solution to such a complex, multipolar conflict is challenging.
- The immediate focus of the international community should thus be on tackling the humanitarian situation in Yemen.
- The UN recently held a conference to raise up to \$2.41 billion for aid works in Yemen.
- But it got pledges only for \$1.35 billion, which means the aid operations would be impacted further.
- Even the limited humanitarian work cannot be sustained if there is no reprieve in the fighting.

7.2 Immigration conundrum - U.S.-Mexico border

Why in news?

The nearly two-month-old U.S. government under President Joe Biden is facing the highest number of migrants reaching its border with Mexico in 20 years.

What is the extent of the crisis?

- There is an unprecedented surge of unaccompanied minors at the U.S.-Mexico border in few weeks.
- The number of unaccompanied teens and children taken into U.S. custody along the border surged in few weeks to nearly 30,000 in February 2021.
- Migrant adults and families continue to be sent back to Mexico when they are caught.
- Unaccompanied children are being processed, and they get help resettling with U.S. relatives.
- Efforts are also stepped up to have children apply for asylum from their homes in Central America instead of making the dangerous journey to the U.S. border.

Why now?

- The former President Donald Trump adopted a “zero tolerance” policy toward undocumented immigrants.
- Trump-era emergency rule gave border agents the authority to summarily turn away most migrants other than unaccompanied minors.
- It denied them the right to have their asylum claims heard.
- In a sense, the mounting crisis now is related to a sweeping immigration reform proposal unveiled by Mr. Biden’s administration a month ago.
- The migrants are thus apparently encouraged to try to enter the U.S. by Biden’s rejection of Trump’s “zero tolerance” policy.

What are the other plans under way?

- There are smaller Bills that the Democrat-controlled Congress could pass with less resistance.
- These include measures to quicken the process for grant of legal status to agriculture workers and “Dreamers”, or undocumented immigrants who entered the U.S. as children.
- There are also plans under way to redress the ills of the legal migration system.
- Many obstacles to this were erected by the Trump White House.
- These include a controversial rule to raise mandatory minimum pay for foreign workers on the H-1B visa for skilled immigrants that is largely granted to Indian nationals.
- Mr. Biden’s broader, omnibus immigration legislation proposal includes an eight-year pathway to citizenship for the nearly 11 million undocumented immigrants.

- It also proposes the use of hi-tech systems for border patrol enforcement.
- [It is suggested that the Biden administration's proposed immigration bill could potentially increase annual 'green card' or permanent residency numbers by 35%.]

What challenge does the immigration crisis pose?

- Undoing some of the damaging policies implemented by his predecessor is getting to be a real challenge for Biden and his administration.
- The immigration crisis now has pushed the need for a comprehensive reform.
- The numbers so far is already wearing federal resources thin.
- The issue has made a call to choose between -
 - the American Dream with an inclusive vision of economic growth premised on embracing diversity and skilled migration
 - the Trumpian 'America First' battle cry for nativist populism
- What Mr. Biden does in the months to come becomes truly significant.

7.3 Suez Canal Blockage

Why in news?

The Suez Canal has been blocked after a large cargo ship ran aground while passing through it, bringing traffic on the busy trade route to a halt.

Why is Suez Canal significant?

- Suez Canal is a critical shipping artery that connects the Mediterranean and Red Seas through Egypt.
- It carries over 12% of world trade by volume.
- A human-made waterway, the Suez Canal is one of the world's most heavily used shipping lanes.
- Built in 1869, it provides a major shortcut for ships moving between Europe and Asia.
- Before its construction, these ships had to sail around Africa to complete the same journey.

Why is the Suez Canal blocked now?

- The vessel blocking Suez is the Ever Given, a Panama-registered container ship.
- It was on its way to Rotterdam in the Netherlands from China.
- The 2018-built vessel, which is 400-m long and 59-m wide, got stuck here due to a mishap caused by bad weather.
- It was passing northwards through the Suez Canal in order to enter the Mediterranean Sea.
- The ship weighing 2 lakh tonnes ran aground and got stuck sideways across the canal.
- It is suspected of being hit by a sudden strong wind, causing the hull to deviate and accidentally hit the bottom and run aground.
- It is thus blocking the path of other ships waiting to cross through on both sides.
- None of the crew members was injured.
- The Suez Canal Authority (SCA) is now trying to refloat the Ever Given using rescue and tug units.
- Diggers are also trying to free the ship from the canal's bank, where it is lodged.

What are the implications?

- The Ever Given is the largest vessel to go aground in the Suez Canal.
- Incidents such as this are rare, but can have massive ramifications for global trade when they happen.
- The effort to remove the ship and make the canal fully functional again could take several days.
- The alternative route between Europe and Asia around Africa is a week slower than the Suez route.



- So, a daylong blockage could have a severe impact on global trade.
- Any such delay could also lead to a shortage of container vessels and boxes.
- This is because 30% of all container ships in the world pass through the Suez.
- As per SCA data, in 2020, nearly 19,000 ships, or an average of 51.5 ships per day, with a net tonnage of 1.17 billion tonnes passed through the canal.

How significant the canal is to Egypt?

- The 150-year-old canal was controlled by British and French interests in its initial years.
- But, it was nationalised in 1956 by Egypt's then leader Gamal Abdel Nasser.
- Over the years, the canal has been widened and deepened.
- In 2015, Egypt announced plans to further expand the Suez Canal.
- This was aimed to reduce the waiting times and double the number of ships that can use the canal daily by 2023.
- Egypt heavily depends on revenues from the canal.
- After the blockage, it is diverting the ships to an older channel to minimise disruption to global trade.
- The blockage has already led to a long queue of vessels waiting to cross the canal.

G.S PAPER III

8. ECONOMY

8.1 Government Disinvestment Programme

What is the issue?

- The government's ambitious disinvestment programme offers investors an opportunity to become shareholders in what were so far closely-held institutions.
- In this backdrop, here is an assessment of the various opportunities and the risks involved.

What are the plans for disinvestment?

- In Budget 2021-22, the government announced a strategic sale/ disinvestment policy for four strategic sectors.
- These include banking, insurance and financial services.
- The government will have a "bare minimum presence" in these sectors.
- The government completely exits PSUs through the strategic sale.
- Apart from this, the Centre has lined up minority stake sale through various routes including offer for sale (OFS) and initial public offering (IPO).
- The biggest will be the IPO of LIC.
- The Budget has also announced privatisation of two public sector banks (in addition to IDBI Bank) and one general insurance company in the upcoming fiscal.
- Privatisation of the two banks will set the trend for a long-term project that envisages only a handful of state-owned banks.
- The rest will be either consolidated with strong banks or privatised.
- The Centre has pegged the disinvestment target for the upcoming fiscal at Rs 1.75 lakh crore.
- This is compared to Rs 2.1 lakh crore budgeted in 2020-21.
 - OFS has been the preferred route for disinvestment.

- Increasing the FDI limit in insurance from 49% to 74% is expected to lead to an unprecedented expansion of the insurance sector.
- This could also give retail investors the chance to ride this profitable sector on a long-term basis.

How does it benefit retail investors?

- The progress on privatisation plans of BPCL, Shipping Corporation of India and CONCOR, among others, has already led to a big rally in their shares.
- Investors bet that the new management and private ownership would bring in higher efficiency leading to higher profits.
- As privatisation will be a long-drawn process over 5-10 years, patient investors can pick and choose the companies they want to bet on.

What is the scope to buy PSU stocks in the secondary market?

- Some do not want to get into the unknown territory of profits resulting out of privatization.
- For them, there is an existing pool of PSU stocks and exchange traded funds to choose from.
- Central public sector enterprises, public sector banks and the insurance companies have been favoured by institutional investors in recent months.
- There has been a steady recovery in PSU stocks, especially after the government announcement on a strategic sale policy and clear intent on privatisation.
- As the equity markets are showing steady recovery, the PSU stocks will continue to do well at least in the medium term.
- Consumption- and privatisation-focused stocks such as IRCTC, BPCL, Shipping Corporation, BEML, and PSU banks are expected to offer reasonable returns over the medium term.

What are the other opportunities?

- As market sentiments have revived after the Covid-19 pandemic, around Rs 1 lakh crore of public issues (excluding LIC) under IPOs are waiting to hit the markets in the near term.
- Markets are likely to witness a bull run in the next financial year as well.
- IPOs of public sector firms earlier were not very encouraging as the pricing was not proper.
- However, recent IPOs provided good gains for investors.
- All these hint at a favourable climate for investment.

What are the risks involved?

- The fate of the IPO market is clearly linked to the performance of the stock market.
- If [bond yields in the US](#) rise further, the equity market will get hit as foreign investors might pull out.
- For the current economic recovery to sustain, containing bond yields is essential.
- It should be done not through 'yield curve management' but through moderating inflation expectation.
- Other risk factors are the possibility of a spike in Covid and lockdown, further rise in crude oil prices, rise in inflation and a possible rise in interest rates.

8.2 SC Ruling on Taxation of Overseas Software

Why in news?

- The Supreme Court held that the amounts paid by Indian companies for the use of softwares developed by foreign companies do not amount to 'royalty.'
- Also, such payments do not give rise to income which is taxable in India.

What does this mean?

- The SC has followed the globally-accepted interpretation.
- Accordingly, payment made by end-users and distributors is akin to payment for sale of goods.

- It is not for grant of licence under the Indian Copyright Act.
- So, the buyer only gets the right of use, and not the intellectual property of the software.
 - Only where copyright in the software is permitted to be exploited by the payer can the payment take the character of royalty.
- Indian companies thus need not deduct tax for the amount they pay to foreign manufacturers and suppliers for use or re-sale of computer software through end-user licence agreements (EULA).
- This ruling should now prevent similar disputes, but a few questions still require deliberation.

What are the unaddressed issues / challenges?

- **Refunds** - Both Indian payers (importers) and non-resident sellers must evaluate the impact of the ruling on pending disputes.
- The underlying issue has been put to rest.
- So now, the taxpayers will be looking to obtain refunds of taxes paid against demands raised or taxes paid by way of withholding tax deposited.
- In cases where this aspect has not been disputed in the past, fresh claims for refunds will have to be lodged.
- This will be either by the non-resident payee or resident payer depending on the type of contracts.
- Thus, review of the contracts for software supplies is necessary to determine eligibility for refunds and lodge claims.
- For refund claims barred by the statute of limitations, taxpayers may need to approach the Central Board of Direct Taxes for directions for grant of refund.
- **Foreign tax credits** - Another impact is on the foreign tax credits (FTC) claimed by non-resident sellers in their home-country against the taxes paid or withheld in India.
- Such non-residents will have to ascertain the right quantum of FTC credit claimed in their home-country.
- They will then have to evaluate the risk of reversal or reduction of claim.
- **TDS** - There are many resident payers who adopted a non-taxability position at the withholding stage.
- But given the different stance of the tax laws, demands were raised/tax recovered from the purported failure to withhold tax at source.
- In such cases, the payers may have recovered back-taxes from the non-resident payees, invoking tax indemnification clauses under the contract.
- Such non-resident payees may now seek a refund from the payers.

How will the ruling benefit?

- The ruling brings much-needed certainty on characterisation of software transactions.
- This is especially true for non-resident taxpayers facing the ire of the retrospective amendments.
- The rationale laid down by the apex court will be relevant for all pending cross-border tax disputes.
- However, the non-resident taxpayers will have to ensure that they meet the eligibility for treaty entitlement such as beneficial ownership and evidence of a valid tax residency.
- Given the stakes involved, it is certain that the government treasury has to pay a few hundred crore in refunds.
- The ruling, however, provides clarity in interpreting tax laws applicable to cross-border transactions and reassuring taxpayers.

8.3 SEBI's New AT1 Bond Norms

Why in news?

- Securities and Exchange Board of India (SEBI) has slapped restrictions on mutual fund (MF) investments in additional tier-1 (AT1) bonds.



- This has raised concerns in the MF and banking sectors, and the Finance Ministry has asked the SEBI to withdraw the changes.

What are AT1 bonds? What is the total outstanding in these bonds?

- AT1 Bonds stand for additional tier-1 bonds.
- These are unsecured bonds which have perpetual tenure.
- In other words, the bonds have no maturity date.
- They have call option, which can be used by the banks to buy these bonds back from investors.
- These bonds are typically used by banks to bolster their core or tier-1 capital.
- Mutual funds (MFs) are among the largest investors in these perpetual debt instruments.
- MFs hold over Rs 35,000 crore of the outstanding additional tier-I bond issuances of Rs 90,000 crore.

What is SEBI's recent decision and why?

- In a recent circular, the SEBI told mutual funds to value the perpetual AT1 Bonds as a 100-year instrument.
- This essentially means MFs have to make the assumption that these bonds would be redeemed in 100 years.
- The regulator also asked MFs to limit the ownership of the bonds at 10% of the assets of a scheme.
- The RBI recently allowed a write-off of Rs 8,400 crore on AT1 bonds issued by Yes Bank Ltd after it was rescued by State Bank of India (SBI).
- The SEBI has probably made the decision after this.
- According to the SEBI, these instruments (AT1 Bonds) could be riskier than other debt instruments.

How will MFs be affected?

- Typically, MFs have treated the date of the call option on AT1 bonds as maturity date.
- Now, if these bonds are treated as 100-year bonds, it raises the risk in these bonds as they become ultra long-term.
- This could also lead to volatility in the prices of these bonds as the risk increases, the yields on these bonds rises.
 - Bond yields and bond prices move in opposite directions.
 - Therefore, higher yield will drive down the price of bond.
- This, in turn, will lead to a decrease in the net asset value of MF schemes holding these bonds.
- Moreover, these bonds are not liquid and it will be difficult for MFs to sell these to meet redemption pressure.
- Potential redemptions on account of this new rule would lead to mutual fund houses engaging in panic selling of the bonds in the secondary market.
- This again will lead to widening of yields.

What is the impact on banks?

- AT1 bonds have emerged as the capital instrument of choice for public banks as they strive to shore up capital ratios.
- If there are restrictions on investments by mutual funds in such bonds, banks will find it hard to raise capital.
- It becomes especially hard at a time when banks need funds in the wake of the soaring bad assets.

Why has the Finance Ministry called for a review?

- The Finance Ministry has sought withdrawal of valuation norms for AT1 bonds prescribed by the SEBI for mutual fund houses.
- The Ministry feels that the decision might lead to mutual funds making losses and exiting from these bonds.
- That would affect capital raising plans of PSU banks.
- Two PSU banks are on the privatisation block.

- Also, banks are yet to receive the proposed capital injection in FY21 although they will need more capital to face the asset-quality challenges in the foreseeable future.
- Given these, the government does not want a disruption in the fund mobilisation exercise of banks.

8.4 State Budgets - Need for Government Spending

What is the issue?

- Several state governments have presented their budgets for the financial year 2021-22.
- States have spent less in this year, and may focus on fiscal consolidation in the year to come, weakening the hopes of a public-spending-led recovery.

What is the projection on government spending?

- There was much a collapse in states' revenues in the last fiscal given the pandemic times.
- Transfers from the Centre thus become a key aspect in the last financial year.
- This was coupled with a "reluctance" among some states to borrow more to spend.
- So at the aggregate level, spending by these states in 2020-21 will end up being lower than what they had budgeted for before the onset of the pandemic.
- The revised estimates peg their total expenditure to decline by around 6% in 2020-21 from their budget estimates.
- These are based on 11 states that account for a little over 60% of India's GDP.
- These trends may hold for the other states as well.
- In that case, the "additional" spending by the central government, over and above its budget estimate, is likely to be offset by the decline in spending by states.
- In effect, the total general government spending may end up being around or even lower than what was budgeted for before the onset of the pandemic.

How is the revenue status?

- This year, states which typically run revenue surpluses will run revenue deficits.
- The revenue collapse meant that states that usually borrow to finance capital expenditure have had to borrow for recurring expenditure as well.
- As a result, capital spending by states, which was budgeted to be around 50% more than that of the Centre in 2020-21, has been cut sharply.
- The states had to cut back even on some of its revenue expenditure.
- Notably, most of these states have cut back on allocations for pensions.
- Some have even slashed allocations for salaries this year.

What is the gap among the states?

- Some of the states did have the leeway to boost spending by borrowing more.
- The Centre had raised the ceiling on their market borrowings from 3 to 5% of GSDP.
- Of this 2 percentage point increase in the borrowing limit, part was unconditional while the remaining was subject to fulfilling Centre-mandated reforms.
- Several states did qualify to undertake the conditional borrowings.
- But, it is only the low-income states with already stretched finances that seem to have availed the additional borrowing space.
 - [These include Bihar, Rajasthan and Madhya Pradesh; their budgeted fiscal deficit for 2020-21 was pegged at 3% or above before the pandemic.]
- They were thus able to either maintain or exceed their budgeted expenditure levels.

- In comparison, the high-income states of Gujarat, Maharashtra and Karnataka, that were better placed to borrow more and spend, have not done so.
- The economic hit from the pandemic is thus uneven.
- The growth projections accompanying these budgets suggest that some states expect to do better than others.
- But, considering the extent of the crisis, there has to be far greater spending than what is visible in these budgets.

What is the scope for fiscal consolidation?

- As is the case with the Centre, states have, remarkably, budgeted for aggressive fiscal consolidation next year.
- The average fiscal deficit across these states is expected to fall by more than 1 percentage point of GSDP.
- This is more than twice the decline recommended by the 15th finance commission.
- This aggressive consolidation is expected to be achieved not by expenditure compression, as is the case with the Centre, but by significant revenue enhancement.
- However, some revenue assumptions are quite ambitious.
- E.g. some states have pegged their GST and VAT collections to grow far in excess of 30% in 2021-22

8.5 SC Verdict on Loan Moratorium Case

Why in news?

The Supreme Court (SC), on the loan moratorium case, declined to extend the 6 months loan moratorium, observing further that the waiver of complete interest is not possible.

What is the case on?

- The verdict came on a batch of petitions seeking –
 - i. waiver of all interest during the period of the pandemic-specific moratorium
 - ii. relief from compound interest for the period for all borrowers without distinction
 - iii. extension of the moratorium period itself
- The petitions had also challenged the decision of the Centre and RBI to restrict waiver of interest on interest to certain categories of borrowers who had availed loans of less than Rs 2 crore.

What was the Centre's stance?

- The Centre had earlier submitted before the top court in this regard.
- Accordingly, if interests are waived on all the loans and advances to all categories of borrowers for the 6-month moratorium period, then the amount foregone would be more than Rs 6 trillion.
- If the banks were to bear this burden, then it would necessarily wipe out a substantial part of their net worth.
- This would render most of the lenders unviable and raise a very serious question mark over their very survival.

What is the Court's ruling?

- The apex court said that the waiver of complete interest is not possible as it affects depositors.
- The Court has sought to limit the scope of its juridical intervention to the questions of -
 - i. whether any laws have been violated
 - ii. whether any actions that banks may have taken under the policy guidance of the government and central bank likely violated any rights of the petitioners
- It observed that wisdom and advisability of economic policy were ordinarily not amenable to judicial review.
- The Bench thus denied all but one of the petitioners' pleas.
- It held that the government's decision to limit the waiver of compound interest to loans under Rs.2 crore was "arbitrary and discriminatory."
- It thus directed a refund of all compound interest levied during the moratorium period.

- The Court justly flagged the absurdity of levying the compound interest on any category of loans.
- This is because, by its very nature, it was a penal interest intended to impose a cost on wilful or deliberate default.
- However, a borrower's decision to defer repayment of instalment by availing of the moratorium could not be considered wilful default.
- Any amount collected as compound interest shall thus be adjusted to the next instalment payable instead of refunding it to the borrower, irrespective of the loan amount.
- This part of the ruling would surely come as a welcome relief to borrowers across categories and loan size.
- On the other hand, it would add a relatively smaller burden, estimated at about Rs.7,500 crore, on lenders (or the Centre, if the government decides to foot the bill and spare banks the cost).
- The verdict thus necessitates the policymakers to urgently come up with measures to help mitigate the crisis before lenders meet with more defaults.

8.6 Archegos Share Dump

What is the issue?

- Archegos Capital Management, a private investment firm based in New York, resorted to a huge fire sale of stocks worth \$20 billion.
- This had caused widespread fears in the global financial market, reminding of the 'Lehman crisis.'

What is the sell-off all about?

- Archegos Capital Management is a private investment firm based in New York.
 - Archegos was founded by Bill Hwang.
 - He founded and ran Tiger Asia from 2001 to 2012, when he renamed it Archegos Capital and made it a family office.
 - Tiger Asia was a Hong Kong-based fund.
- Archegos Capital Management recently resorted to a huge fire sale of stocks worth \$20 billion.
- The fund had large exposures to Viacom CBS and several Chinese technology stocks.
- It was hit hard after shares of Viacom CBS (US media group) began to tumble.
- The decline in stock prices prompted a *margin call* from one of Archegos's prime brokers.
- This triggered similar demands for cash from other banks.
- Traders were braced for further block sell-offs in stocks associated with Archegos and other funds that could also be forced to unwind heavily leveraged positions.

What is a margin call?

- Typically, a margin call occurs when the value of an investor's margin account falls below the broker's required amount during a market correction or sell-off.
- The margin account contains securities bought with borrowed money.
- A margin call is usually an indicator that the securities held in the margin account has decreased in value.
- So, lenders demand that an investor deposit additional money or securities into the account so that it is brought up to the minimum value.
- The investor must thus choose to either deposit more money in the account or sell some of the assets held in their account.
- If the investor fails to pay up the margin amount, the lender will resort to sale of assets lying in the investor's account.
- The huge margin call on Archegos was the major driver behind the recent steep sell-off and the subsequent hits to several global bank balance sheets.



What is the impact of the sale?

- The sale caused big drops in the share prices of companies linked to the investment firm.
- This has put markets on the edge about the scale of the possible fallout, raising fears of a possible “Lehman moment”.
 - The ‘Lehman crisis’ is associated with the bankruptcy of the giant Lehman Brothers Holdings, a global financial services firm in the U.S.
 - This happened in September 2008.
 - This was the biggest ever bankruptcy, that triggered a wave of bailout measures from the Federal Reserve and the US Treasury to save the economic structure.
- In that case, the event would force multiple lenders - mainly Credit Suisse and Nomura - to suffer huge losses.
- The problems at Nomura and Credit Suisse is possibly related to being slower in offloading share blocks into the market compared with their peers.
- Nomura said that it faced a possible \$2 billion loss due to transactions with a US client.
- Credit Suisse said a default on margin calls by a US-based fund could be “highly significant and material” to its first-quarter results.
- Credit Suisse is estimated to have lost between \$3 bn and \$4 bn.

8.7 Bond Yield, GDP and GVA

What is the issue?

- As the Covid-19 vaccines are rolled out, economic activity is gaining momentum.
- So investors are moving away from government bonds thereby increasing the bond yields.

What are Bond Yields?

- A bond is a debt instrument which governments sell to raise fund for meeting its expenditure.
- These bonds have a selling price and a fixed coupon rate.
- Bond yield is the return an investor realizes on a bond and it is inversely proportional to the bond price.

How does Yield vary with the economy?

- If investors are apprehensive about the economy, they will invest in government bonds as it is the safest form of investment.
- In such cases, the demand for government bonds will rise and so will their prices and yield will fall down.
- If investors have positive view about the economy, they move away from government bonds, which results in a fall in bond prices and increase in yields.

How does Indian Stock Market get affected by this yield variation?

- With the arrival of Covid-19 vaccines in the US, economy is regaining its pace so investors move away from government bonds.
- But US bond yields are influential and seen as safest one in the global market hence they attract funds from investors across the world increasing the bond yields.
- Hence the US central bank will raise interest rates to contain inflation as economic growth takes off now.
- Now Global investors will pull out money from emerging economies such as India and invest in US bonds which affect India’s domestic stock markets negatively.
- But the yields of Indian G-secs have also got raised in line with US bond yields.
- This means that investors find lending to the Indian government a better alternative than lending to the Indian firms.

How is GDP different from GVA?

- GDP is the total amount of money spent in an economy and GVA is the value added (in money terms) by economic agents in each sector of the economy.
- GVA is more relevant to map the performance of the domestic economy from one quarter to another.
- In fact in a year, GVA data is made available first and GDP is arrived at by taking the GVA and adding all the government taxes and subtracting all the government subsidies.
- This implies that for the same level of GVA in an economy, the GDP could alter just because the government earned more money from its taxes or spent more on subsidies.
- In other words, to have a better picture about the true state of India's economic revival GVA should be used.

What does Second Revised Estimates mention about this?

- As per the Ministry of Statistics and Programme Implementation Second Revised Estimates (SAE), India's GDP is expected to contract at 8% when compared to 7.7% in the First Estimate.
- This means that India's per capita GDP, per capita private consumption and the level of investments in the economy are expected to fall to a level which was seen in 2016-17 or earlier.
- The GDP growth rate is revised down and GVA growth rate is revised up.
- It also expects the industry and the services sectors to contract but the pace of contraction is lower than what was expected in January.
- This indicates that India economy is on a recovery phase even though the GDP growth rate got worsened.

8.8 Independent Directors

Why in news?

Recently, SEBI made stringent rules for appointment and removal of independent directors to reinforce their independence.

Who is an Independent director?

- An Independent director (ID) is a non-executive director who does not have any kind of relationship, material or financial, with the company.
- They ensure the independence of decisions taken in matters related with the board.

What are the existing rules?

- In 2018, SEBI made sweeping changes in its regulations thereby enlarging the role, responsibilities and eligibility criteria for IDs.
- In 2019, the Ministry of Corporate Affairs prescribed compulsory registration and written exam requirements for IDs.
- Currently IDs are recommended for appointment by the Nomination and Remuneration Committee (NRC) of the Board.
- This will be later ratified through an ordinary resolution passed by the board.

What is the new rule?

- Now SEBI recommends to replace the present rules with a dual approval process.
- It suggests that NRC's recommendation should be approved by a majority of a company's minority shareholders in addition to the ordinary resolution by the board.
- Removal of IDs should also go through the same process.
- To align ID interests with shareholders, it suggests the grant of long-vesting Employee Stock Options (ESOPs).

What are the flaws with new rules?

- Veto Powers for the minority shareholders will prevent the promoters from appointing their favourite IDs.
- But the issue is that retail shareholders are mostly concerned about corporate voting exercises and institutions will hesitate to vote against incumbent managements.



- Hence for well-run companies backed by promoters without ill-intent, this new process will only raise the compliance burden.
- Moreover too many non-executive directors in the board can affect the promoters.
- It is also unfair to expect IDs to view everything from a company's related party deals to mergers and takeovers.

What can be done now?

- To encourage only diligent candidates to apply for IDs, their responsibilities need to be narrowed down and their role needs to be matched to wide-ranging responsibilities of the company.
- The statutory obligations must be restrict IDs to check governance infringement.
- Their participation in strategic decisions should be left to their discretion based on their sector expertise and qualifications.
- Regulators can consider prescribing a slab-wise fee structure for IDs based on company size and complexity.
- They can also devise ways to expand the limited pool of managers who are willing to apply for ID positions.

8.9 Gold Standard

Why in news?

There International Bullion Exchange is being established in Gujarat International Finance Tec-City.

Why there is a need for establishing this exchange?

- Due to the absence of spot market for gold, domestic stakeholders were forced to use prices traded on international exchanges for computing local prices.
- So a MOU was signed between the leading stock and commodity exchanges and depository participants.
- This paved way for establishing the market infrastructure for the bullion exchange.

How are the prices determined until now?

- Currently there is no transparency in determining the local price of gold.
- It is decided by the Indian bullion and jewellers association based on buy and sell quotes from ten of its biggest dealers.
- These dealers then convert the international gold price to rupee, add taxes and their commission to quote the price.
- This method of price fixing is vulnerable to manipulation as witnessed in countries such as the UK.
- With the establishment of this exchange, transparency will get imparted in determining the local price of gold.
- Also a strong bullion exchange in the IFSC will help jewellers and retailers to buy gold directly from foreign traders instead of using banks as intermediaries.

What are the benefits of this exchange?

- In the international bullion market, India will soon become a price setter from being a price taker.
- The exchange will help in better price discovery of bullions.
- It will facilitate in trading the bullion spot delivery contract and spot depository receipt.
- It has Bullion vaulting services which facilitates in storing the gold traded at the offshore exchange.
- This exchange can also become a future hub of gold trading if international traders are incentivised enough to shift part of their trading here.

Who will regulate the exchange?

- In India, most of the spot commodity markets features in the State list and are beyond the purview of SEBI.
- So the International Financial Services Centres Authority has been given the responsibility of supervising the implementation and operations of the exchange.

- This is done according to the IFSCA (Bullion Exchange) Regulations, 2020.

What are the issues present in this process?

- It is not easy to attract foreign companies who trade gold in other offshore centres to the domestic exchange.
- IFSCA has to provide enough incentives -lower transaction cost and other benefits -to make them shift to the GIFT IFSC.
- Also there is no clarity whether retail clients can sell their gold at this exchange.
- If their participation is enabled, then gold assaying centres needs to be up at IFSC along with regulatory changes.

8.10 FDI Hike in the Insurance Sector

Why in news?

Recently, Union cabinet approved a proposal raise the FDI limit from the current 49 % to 74%.

What is India's Insurance penetration?

- Insurance penetration is defined as ratio of premium underwritten in a given year to the Gross Domestic Product (GDP).
- As per the Economic Survey 2020-21, the insurance penetration in India has risen from 2.71 in 2001 to 3.76 in 2019.
- But this figure is far lower than in countries like Malaysia (4.72), Thailand (4.99) and China (4.3), despite India having 24 life insurance companies and 34 non-life insurance companies.
- India's life insurance declined from 3.1 in 2013 to 2.82 in 2019 and non-life insurance is 0.94%.
- But the global insurance penetration stands at 3.35% in the life segment and 3.88 in the non-life segment.
- Similarly, the insurance density (the ratio of premium to population) in India rose from \$11.5 in 2001 to \$78 in 2019.
- But this data is lower than other Asian economies –Malaysia (\$536), Thailand (\$389) and China (\$430).

What are the reasons for this low penetration?

- Low insurance penetration in India is because of the higher expenditure on insurance firms for increasing the coverage.
- Moreover the existing FII holdings in insurance firms is not been fully utilised.
- The average foreign investment in the insurance companies (both life and non-life) remains well below the current limits.
- Thus increasing the FDI limit could lead to a capital infusion in insurance companies and help them to expand their coverage.

What are the outcomes of this FDI increase?

- It is likely that this move will provide greater comfort to foreign investors due to India's favourable demographics and the underinsured market.
- It will benefit smaller players who currently have limited access to long-term committed sources of finance and foster greater competition among the insurance firms.
- This will also bring additional benefits in the form of greater technical know-how, global expertise in creating new products and better underwriting skills which greatly benefits the consumer.

8.11 New Norms for AT1 Bond

Why in news?

Recently, SEBI decided to slap restrictions on mutual fund (MF) investments in additional tier-1 (AT1) bonds.

What are AT1 bonds?

- AT1 bonds are unsecured bonds and they don't have maturity date.

- They have call option which can be used by the banks to buy these bonds back from investors.
- These bonds are typically used by banks to boost their core or tier-1 capital and these bonds are subordinate to all other debt instruments and only senior to common equity.
- As of now MFs are among the largest investors in perpetual debt instruments and hold over Rs 35,000 crore of the outstanding additional tier-I bond issuances of Rs 90,000 crore.

What changes did SEBI issue now?

- In a recent circular, the SEBI told mutual funds to value these perpetual bonds as a 100-year instrument i.e. bonds will be redeemed in 100 years.
- It has also asked MFs to limit the ownership of the bonds at 10 % of the assets of a scheme.
- This decision has been made after RBI allowed a write-off of Rs 8,400 crore on AT1 bonds issued by Yes Bank Ltd after it was rescued by SBI.

How MFs will be affected?

- Usually, MFs treat the date of the call option on AT1 bonds as maturity date.
- Now, if these bonds are treated as 100-year bonds, it raises the risk in these bonds as they become ultra long-term.
- This could lead to volatility in the bond prices, as the risk increases the yields on these bonds rises.
- This in turn will lead to a decrease in the net asset value of MFs holding these bonds.
- Moreover, these bonds are not liquid and it will be difficult for MFs to sell these to meet redemption pressure.

What is the impact this on banks?

- AT1 bonds have emerged as the capital instrument of choice for state banks as they strive to shore up capital ratios.
- The new restriction will lead to a cumbersome process for the banks to raise capital at a time when they need funds.
- A major chunk of AT1 bonds is bought by mutual funds and in 2020-2021, State banks have cumulatively raised around \$ 2.3 billion through AT1 instruments.
- Though AT1 bonds account for a relatively small proportion of the capital structure but they are seen as significant tool among state banks for an alternative to equity.

Why has the Finance Ministry asked SEBI to review the decision?

- The Finance Ministry has sought withdrawal of these valuation norms for AT1 bonds.
- This is because it might lead to mutual funds making losses and exiting from these bonds thereby affecting capital raising plans of PSU banks.
- The government doesn't want a disruption in the fund mobilisation exercise of banks at a time when two PSU banks are on the privatisation block.

8.12 Special Purpose Acquisition Companies

Why in news?

Recently, International Financial Services Authority sought the views of the public on listing the securities of Special Purpose Acquisition Companies on the GIFT IFSC.

What is Special Purpose Acquisition Companies (SPACs)?

- SPACs are shell companies that raise money with the intention to acquire an existing company from the funds raised in the public offer.
- These companies don't have existing business and investors in these issues bet on future acquisitions which give them due returns.
- Like crypto currencies, the company assets don't have any intrinsic value at the time of the issue.



- Investors just rely on the reputation of the sponsor and his expertise in identifying the right company for acquisition.
- In recent times they are gaining popularity due to the increasing global liquidity levels on the prices of risky assets.

What are the merits on listing new securities?

- IFSCA is right in its consideration to introduce new categories of securities in the IFSC.
- These securities can be issued by an unlisted issuer or a follow-on public offer of specified securities by a listed issuer or listing of specified securities by a start-up company or an SME.
- If the pool of investors at the IFSC increases, it will help domestic entities raise funds easily.
- Moreover listing of debt securities including ESG focussed debt securities can enhance the reputation of the IFSC.

What is the issue in expanding the base of securities?

- IFSCA ruled that sponsors will hold at least 20% of the post-issue capital and suggested a minimum application of \$250,000 to protect the investors from risk of loss.
- If tight monetary condition prevails, the desire for these products will reduce which might cause losses to investors.
- Moreover increasing the acquisition timeline to four years from three years is considered too long.
- If any of the issuers fail to make the intended acquisitions, it may impact the credibility of the GIFT-IFSC.
- Though IFSC intends to expand the range of securities traded in the offshore centre but it should be mindful of not eroding the credibility of the centre.
- Given the GIFT-IFSC is in at a very nascent stage of development, it is best not to introduce this in the GIFT-IFSC.

9. INFRASTRUCTURE

9.1 Maritime India Vision 2030

What is the issue?

- Indian PM recently inaugurated the 'Maritime India Summit 2021,' also releasing the e-book of 'Maritime India Vision-2030' (MIV-2030).
- In this context, here is a look at the maritime sector in India and the scope of MIV-2030.

Why is the maritime sector in India significant?

- India's coastline is 1.05% of the global coastline.
- The Indian maritime sector accounts for 95% of EXIM (export-import) trade by volume.
- It is a significant employment generator.
- India accounted for 10.4% of global maritime trade in FY 2019.
- It contributes 9.03% of the total seafarers (officers) globally.
- This makes Indian an integral part of the shipping ecosystem.
- India's position in the global maritime sector is fundamental for international trade.

How is the port capacity being utilized?

- The maritime trade is facilitated by the growing port capacity in India.
- In FY 2019, the capacity for Indian ports stood at 2,377 million tonnes per annum (mtpa).
- It handled traffic of 1,281 mtpa.

- Twelve major ports accounted for 1,514 mtpa of capacity.
- They handled 699 mtpa of traffic, leading to utilisation of a mere 46.2%.
- Non-major ports accounts for 863 mtpa of capacity.
- They handled 582 mtpa of traffic, which is an utilisation of 67%.
- Thus, key enhancements in policy, investment, operations and technology are crucial.
- These will facilitate bringing India to the forefront of global maritime trade.

What does the Maritime India Vision 2030 entail?

- The ministry of ports, shipping and waterways has launched the MIV-2030.
- MIV 2030 projects cargo traffic to reach 2,570 mtpa by 2030.
- The vision outlines 10 broad themes.
- It encompasses 150+ initiatives covering all the facets of the Indian maritime sector.
- It comes as an effort to define and meet national maritime objectives.
- These initiatives are broadly aimed at development of port ecosystem, port operations and services, waterways and, shipping and cruises.

What are the projects/initiatives being planned?

- **Mega-port clusters** - For ports, world-class infrastructure will form the backbone of the envisioned transformation.
- In line with global trends of mega-ports, development of four mega-port clusters with capacity of more than 300 mtpa is planned.
- These will come in the states of Gujarat, Maharashtra, Tamil Nadu and West Bengal-Odisha.
- These clusters were post evaluation of industrialisation and hinterland-connectivity potential.
- Since the sector has been moving towards mega vessels, an increase of the draft at all major Indian ports is targeted.
- **Transshipment hub** - India's strategic location has long required development of a transshipment hub for better efficiency in maritime trade.
- The ministry would thus work towards developing a transshipment hub (TS) in South India.
- At present, approximately 75% of India's transshipment cargo is handled by ports outside India.
 - These include Colombo, Singapore and Klang.
- This increases the cost/TEU for EXIM players.
 - [A TEU or Twenty-foot Equivalent Unit is an exact unit used to measure cargo capacity for container ships and container terminals.
 - A TEU is a shipping container whose internal dimensions measure about 20 feet long, 8 feet wide, and 8 feet tall.]
- Therefore, there are plans to increase the transshipment capacity through -
 - i. accelerated operationalisation of such ports
 - ii. development of green-field TS ports at Kanyakumari and Campbell Bay as additional transshipment hubs in a phased manner
 - iii. increase capacity of existing ports like Cochin
- **Procedural measures** - Automation of ports, seamless movement of cargo and paperless transactions are basic needs now.
- Currently, lack of digitalisation, lack of availability of real-time information and limited standardisation of port procedures are negatively impacting seamless trade.
- Hence, steps have been identified in MIV to improve ease of doing business in the maritime sector.



- A National Logistics Portal (Marine) is to be launched as an integrated platform for all EXIM stakeholders enabling 100% paperless processes.
- It will be the focal point for domestic shipment tracking, cloud-based document management, digital payments, etc.
- Additionally, more than 50 smart interventions, like predictive maintenance, deployment of automated quay cranes, etc, have been identified to transform major ports into smart ports.
- **Manufacturing and logistics** - Concrete steps have been identified for driving Aatmanirbhar Bharat through increased manufacturing and decreasing logistics cost.
- Pockets with high potential to undertake port-led industrialisation, spread over 6,000 acres, have been identified.
- This would be complemented with projects aimed at reducing logistics cost.
- E.g. development of commodity-specific infrastructure at ports for promoting coastal shipping, automation/mechanisation of operations
- **Environment friendly** - MIV-2030 also aims at building safer and environmentally-sustainable ports.
- Some of the key measures to develop Green Ports include -
 - i. increased share of renewable energy in port operations
 - ii. sustainable use of dredging material
 - iii. reducing freshwater consumption and emissions
 - iv. promoting development of 'zero accident' ports
 - v. real-time monitoring of HSE KPIs [Health and Safety KPIs (Key Performance Indicator)]
- **Shipping** - On the shipping front, MIV aims to make India the leading ship recycling and repair hub.
- It also aims to increase the gross tonnage of ships built in India by more than 15 times.
- This would be achieved through -
 - i. channelization of domestic demand for ship-building and repair
 - ii. leveraging Right of First Refusal (RoFR) rules under Aatmanirbhar Bharat Scheme
- India has already demonstrated strong ship-building capability with several shipyards delivering good quality vessels globally.
- Repair and recycling clusters would be developed.
- For this, usage of scrap material will be promoted through modification of BIS (Bureau of Indian Standards) regulations and re-development of ship recycling infrastructure at Alang.
- **Trade and cooperation** - To increase regional maritime cooperation and trade, a BIMSTEC centre is planned to be established in India.
 - BIMSTEC - Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
- It would facilitate infrastructure investment and trade agreements with BIMSTEC countries.
- Efforts would also be made to develop and export India's core competencies like IT, naval architecture, and maritime training to support other developing countries.
- **Inland water transport** - India is endowed with various Inland Water Transport (IWT) options comprising rivers, canals, backwaters, creeks, and tidal inlets.
- These provide environmentally-friendly mode of freight logistics and passenger transport with lower operating costs.
- The government has prioritised development, over the next 10 years, of 23 National Waterways (NWs) with significant traffic potential.
- NW 1 (Ganga-Bhagirathi-Hooghly system) and NW 2 (Brahmaputra) hold immense significance as they connect neighbouring countries with India's hinterland.



- These waterways are to be connected to form the Eastern Waterways Connectivity Transport Grid.
- This would provide cost-effective EXIM with Bangladesh, Bhutan, Myanmar and Nepal.
- **Cruise tourism** - Development potential of sectors like cruise tourism (both river & ocean cruise) has also been identified as a part of the vision.
- To this end, government has already undertaken several measures like rationalisation of port charges, cabotage relaxation for foreign vessels, expedited immigration and development of cruise terminals.
- Themes-based coastal and island circuits have also been identified on a priority basis.
- In all, MIV 2030 aims to increase the share of Indian seafarers in the global talent pool.
- Advancements in maritime trade would lead to evolution in capabilities for on-shore operations.
- Accordingly, training programmes focusing on maritime skills would be launched in partnership with industry.

10. AGRICULTURE

10.1 Farmer Producers Organisations

What is the issue?

- One of the reasons for agrarian distress is the declining average size of farm holdings.
- In this context, here is how farmer producer organisations (FPOs) could help deal with it.

How have farm holdings nature changed?

- The average farm size declined from 2.3 hectares (ha) in 1970-71 to 1.08 ha in 2015-16.
- The share of small and marginal farmers increased from 70% in 1980-81 to 86% in 2015-16.
- At the state level, the average size of farm holdings in 2015-16 ranged from 3.62 ha in Punjab, 2.73 in Rajasthan to 0.75 in Tamil Nadu, 0.73 in Uttar Pradesh, 0.39 in Bihar and 0.18 in Kerala.

What are FPOs?

- Small farmers face several challenges in getting access to inputs and marketing facilities.
- A group or collective is one of the main institutional mechanisms to help such marginal and small farmers.
- In the last decade, the Centre has encouraged farmer producer organisations (FPOs) to help farmers.
- The membership of an FPO ranges from 100 to over 1,000 farmers.
- Most of these farmers have small holdings.
- Aggregation helps them overcome the constraint of small size.
- Small farmers gain greater bargaining power through FPOs in relation to the purchase of inputs, obtaining credit and selling the produce.

What are the government measures in this regard?

- Since 2011, it has intensively promoted FPOs under the Small Farmers' Agri-Business Consortium (SFAC), NABARD, state governments and NGOs.
- The ongoing support for FPOs is mainly in the form of –
 1. a grant of matching equity (cash infusion of up to Rs 10 lakh) to registered FPOs
 2. a credit guarantee cover to lending institutions (maximum guarantee cover 85% of loans not exceeding Rs 100 lakh)
- India has 5,000 to 7,500 such entities as per different estimates.
- A majority of them are farmer producer companies.
- The budget for 2018-19 announced supporting measures for FPOs including a five-year tax exemption.

- The budget for 2019-20 talked of setting up 10,000 more FPOs in the next 5 years.

How have FPOs performed so far?

- Experience shows a mixed performance of FPOs in the last decade.
- Some estimates show that 30% of these are operating viably while 20% are struggling to survive.
- The remaining 50% are still in the initial phase of mobilisation and business planning.
- FPOs in Gujarat, Maharashtra, Madhya Pradesh, Rajasthan and some other states have shown encouraging results.
- They have been able to realise higher returns for their produce.

What are the concerns to be addressed?

- Studies of NABARD show that there are some important challenges for building sustainable FPOs.
- Some of these are -
 - i. lack of technical skills
 - ii. inadequate professional management
 - iii. weak financials, inadequate access to credit
 - iv. lack of risk mitigation mechanism
 - v. inadequate access to market and infrastructure
- Some studies highlight the need for more than one lakh FPOs for a large country like India while currently there are less than 10,000.
- FPO seems to be an important institutional mechanism to organise small and marginal farmers.
- However, the fundamental problem of the small size of holdings giving only a limited income is not resolved.
- Incomes will rise because of the benefits flowing from FPOs.
- But they may not still be adequate to give a reasonable income to small and marginal farmers. That issue has to be handled separately.

What are the possible measures?

- The above issues such as working capital, marketing, infrastructure have to be addressed while scaling up FPOs.
- Getting credit is the biggest problem. Banks must thus have structured products for lending to FPOs.
- These organisations lack professional management and, therefore, need capacity building.
- Also, they have to be linked with input companies, technical service providers, marketing/processing companies, retailers etc.
- They need a lot of data on markets and prices and other information and competency in information technology.
- FPOs can be used to augment the size of the land by focusing on grouping contiguous tracts of land as far as possible; they should not be a mere grouping of individuals.
- Women farmers can also be encouraged to group cultivate for getting better returns.
- FPOs can also encourage consolidation of holdings.

10.2 Food Corporation of India Directive

Why in news?

Food Corporation of India's (FCI) Punjab office recently wrote to the director of food, civil supplies and consumer affairs seeking land records of farmers.

What is the FCI directive and why?

- The FCI has requested to share the data of land records.



- It was also asked to convey to the FCI office where to find them so that FCI shall verify land records of farmers during Rabi marketing season (RMS) 2021-22 with regard to FCI's own purchase.
- The purpose is to make direct online payment of Minimum Support Price (MSP) to the land owners' bank accounts from the upcoming RMS.
- The issue of direct payment to farmers' accounts is something the Centre has been mulling for the past couple of years.
- The aim is to remove middlemen from the process.

How many land owners are there in Punjab?

- There are around 10.93 lakh operational land holdings in Punjab as per the agricultural census 2015-16.
- But this does not mean that the number of agricultural land owners is also the same.
- The number of owners are more because in several cases, a single piece of land has many shareholders.
- According to records, there are around 16 lakh farmer land owners in Punjab and around 9.50 lakh cultivators.

What is the problem with providing land records?

- There is no hindrance in providing land records.
- The main problem is that all the 16 lakh farm land owners are not cultivating their respective lands.
- According to the Punjab Land Revenue Act, the owner of the land is mentioned as khud kashtkar (self-cultivator) whether the person is cultivating that land or not.
- In that case, providing the owners' bank accounts would not serve the purpose of making MSP payment.
- The MSP should technically go to the real cultivators of the land.
- Around 45-50% owners have given their lands on lease and are charging annual rent for that.
- The actual cultivators do not own that land while doing farming on it for decades.

What is the current practice?

- Currently, arhtiyas (commission agents) get the payments in their accounts, which they in turn pay to farmers through cheques.
- The Centre has to pay 2.5% commission to arhtiyas who facilitate procurement of the crop from farmers to government agencies.
- In this system, farmers get payment through their landlord who may not be residing in the local area.
- There is hardly anything in written in majority of land leasing cases.
- The name of the cultivator is hardly mentioned anywhere as everything goes on in good faith.
- Both landless farmers, and small and marginal farmers also take land on rent for cultivation.

What will the implication of the new proposal be?

- Earlier too, this category (cultivators or landless) of farmers was deprived of benefits of several government schemes such as subsidies and direct benefit transfers.
- The cultivators do not receive these benefits or it is delayed by a year, as farmer owners do not pass it on to the cultivators.
- The same is likely to happen now for MSPs too.
- The actual cultivators may not get the MSP against sold crop as the money will go into the land owner account.
- There are no mechanisms in place to ensure that the cultivator would get his/her money on time from the land owner.
- Sometimes a cultivator takes land on lease from multiple landlords.
- This would further complicate the matter and he/she will be dependent on the owner of the land for payment of the MSP.



- Going by the land owners record will thus create inefficiency in the marketing process and will hit the income of the actual cultivators.
- Such measures of the government are only seen as attempts to run away from procurement in a phased manner.

11. SCIENCE & TECHNOLOGY

11.1 Mapping the Genomes in the Indian Ocean

Why in news?

Recently, Scientists will expedite to Indian Ocean for a research project to explore the internal working of the Ocean at cellular level.

What is the research project about?

- The team of 30 scientists and researchers from NIO will traverse from India's east coast to Australia, Mauritius, borders of Pakistan and end in India's west coast.
- They will collect samples from various stretches of the ocean at an average depth of about 5 km.
- Using this data, scientists will do the genome mapping of microorganisms present in the Indian Ocean.
- This mapping is similar to gene mapping carried out on human's blood samples.

What are the outcomes of this mapping?

- One, the mapping will help in understanding the internal working of Indian Ocean ecosystem.
- This will identify the factors which control the changes in RNA, DNA in the oceans and various stresses which affects them.
- Two, the Indian Ocean has several micronutrients like nitrates, sulphates and silicates, minerals like iron ore and zinc, and trace metals like cadmium or copper.
- This mapping will help in understanding which microbes have adapted to these nutrients and will help in identifying which part of the ocean has a greater concentration of which mineral.
- It will also find out the cause for excess or lack of a certain minerals in the Ocean and suggest possible solutions for their mitigation.
- Three, the exploration will advance commercial biotechnology applications like anticancer treatments, cosmetics, industrial enzymes and antiviral molecule.
- Four, this will give new insights into their taxonomy and their adaptive capacity which helps in optimising the conservation efforts.

What can we infer from studying the interactions of trace metals and marine plant and animal life?

- Trace metals like cadmium or copper are essential for ocean productivity which are supplied to oceans via continental run-offs, atmospheric deposition, and hydrothermal activities.
- The interaction of trace metals with marine biota gives a holistic understanding about nutrient cycling and productivity of the oceans.
- Moreover the isotopic forms of trace metals can be utilised to track the movement of water masses responsible for ocean circulation.
- From this we can understand the biological, geochemical and ecosystem processes and food web analyses.
- The project is also expected to generate new information about trace metals from underexplored regions of the Indian Ocean.

11.2 Water and Virus

Why in news?

Recently NITI Aayog reported that over 70% of India's contaminated surface and groundwater is likely to carry virus.



How can water transmit virus?

- Today animals are locked together for mass production of meat which creates an artificial environment for mutations in erstwhile dormant viruses.
- These viruses can proliferate in wastewater and remnants of such virus are detected in raw sewage across Sydney.
- In England, Wales and Scotland, several wastewater samples carry traces of SARS-CoV-2.
- This water is often discharged into Indian water bodies and there is a high chance that these water bodies can be the host for viruses of different kinds on which they can mutate and strike.
- Water-transmitted viral pathogens are astrovirus, hepatitis A and norovirus can affect huge section of Indian population.
- This is because Indian people use polluted water from sources like rivers, lakes or groundwater for drinking.

What are the measures taken?

- Despite the poor water quality in India, Nal se Jal scheme was announced to provide drinking water connections to every rural household by 2024.
- Decontaminating Indian water bodies and groundwater could take several decades.
- Reverse osmosis technique can purify decontaminated water but it takes out all the healthy minerals required for the human body.
- Though ultraviolet aqua guard treatment neutralises the virus and doesn't remove minerals it is a costlier process to adopt.

What is the solution?

- There are two unpolluted fresh water sources left in the country.
- One is the water lying below our forests and other is the aquifers that lie below the floodplains of rivers.
- Both these sources provide natural underground storage of water which is renewable.
- These aquifers can be used to provide healthy mineral water for drinking purposes to our cities and towns and Yamuna floodplains in Delhi provide water to a million people each year.
- Hence these forests and floodplains must be declared as water sanctuaries.

11.3 ISRO's PSLV-C51 Launch - NSIL

Why in news?

- ISRO successfully launched Brazil's optical earth observation satellite, Amazonia-1, and 18 co-passenger satellites from India [5] and the U.S.A. [13].
- The satellites were carried on board the PSLV-C51 from the Satish Dhawan Space Centre (SHAR) at Sriharikota.

What all were part of it?

- Of the 13 satellites from the U.S., one was a technology demonstration satellite.
- The remaining for 2-way communications and data relay.
- Five satellites belong to India including –
 - i. the Satish Dhawan SAT (SDSAT) built by Space Kidz India, a nano-satellite intended to study the radiation levels, space weather and demonstrate long range communication technologies
 - ii. the UNITYsat, a combination of three satellites intended for providing radio relay services
- The other satellite belongs to DRDO.
- The main payload in the mission was Brazil's Amazonia-1 earth observation satellite.
- The sun-synchronous Amazonia-1 is the first satellite to be fully designed, integrated, tested, and operated by Brazil's National Institute for Space Research.

- It can generate images of any part of the world every 5 days.
- But it will be used mainly to provide remote sensing data to monitor deforestation in the Amazon.

Why is it significant?

- With the launch of Brazil's Amazonia-1 satellite, a new chapter has begun in India's space history.
- The satellite was the first dedicated commercial mission of New Space India Limited (NSIL).
 - NSIL is a two-year-old commercial arm of ISRO.
- This is not the first time that NSIL has organised a launch of foreign satellites aboard an ISRO launch vehicle.
- The organisation has had launches in November 2020 as well as in December 2019.
- However, the primary satellites aboard both these missions were Indian satellites — the RISAT-2BRI and the EOS-01.
- There were smaller satellites from several other countries, as well as India.
- The Amazonia mission also saw 18 other satellites being launched and was the first fully commercial mission.
- The mission was undertaken under a commercial arrangement with Spaceflight Inc., USA.
- The launch with PSLV-C51 is the 53rd flight of India's workhorse launch vehicle (PSLV).

What is the future potential?

- India has so far launched 342 foreign satellites from 34 countries using its PSLV platform.
- Many of them have involved ISRO's first commercial entity, the Antrix Corporation.
- There is still confusion on how exactly the responsibilities of NSIL differ from those of Antrix.
- But there is a potential explosion of market opportunities from space applications with -
 - i. the formation of the Indian National Space Promotion and Authorization Center (IN-SPACe), a regulatory agency
 - ii. plans of an independent tribunal to adjudicate disputes among private space entities
- The private sector plays a major role in developing launch and satellite infrastructure for ISRO.
- But now, there are several companies that offer varied other services.

What role is NSIL expected to play?

- NSIL has a broad ambit and will be involved in collaborations spanning from launches to new space-related industries.
- NSIL is also expected to be more than just a marketer of ISRO's technologies.
- It is expected to find newer business opportunities and expand the sector itself.
- NSIL must endeavour to not be another Antrix but be continuously in start-up mode.
- It must conceive of ways to aid space start-ups reach out to rural India.
- It should thus facilitate more recruits from India's youth to facilitate careers in space applications and sciences.

12. ENVIRONMENT

12.1 Similipal Forest Fire

Why in news?

- The Similipal forest reserve area frequently witnesses forest fires during dry weather conditions.
- The recent one took weeks to come to control and the massive fire has threatened to cause colossal damage to the Similipal Biosphere.



What is the Similipal Biosphere reserve?

- Similipal is a national park and a tiger reserve.
 - Similipal derives its name from 'Simul' (silk cotton) tree.
- It is situated in the northern part of Odisha's Mayurbhanj district.
- Similipal and the adjoining areas was declared a biosphere reserve by the Government of India in 1994.
- It lies in the eastern end of the eastern ghat.
- **Biodiversity** - Similipal is the abode of 94 species of orchids and about 3,000 species of plants.
- The identified species of fauna include 12 species of amphibians, 29 species of reptiles, 264 species of birds and 42 species of mammals.
- All of this collectively highlights the biodiversity richness of Similipal.
- Sal is a dominant tree species.
- The transition zone of the reserve has 1,200 villages with a total population of about 4.5 lakh.
- Tribals constitute about 73% of the population.

How fire prone is Similipal forest?

- Generally, with the onset of summers and towards the end of autumn, the forest area remains vulnerable to forest fires.
- They are a recurrent annual phenomenon, but are also brought under control due to short span of precipitation.
 - The months of January and February witness rainfall of 10.8 and 21 mm, respectively.
- This duration coincides with the shedding of deciduous forests in the forest areas.
- The fallen leaves are more vulnerable to catching fire.
- They facilitate the spreading of forest fires quickly over the entire forest area.
- The last incident of a major forest fire was reported in 2015.

What are the main causes?

- Natural causes such as lightning or even soaring temperatures can sometimes result in these fires.
- But forest officials and activists say most of the fires can be attributed to man-made factors.
- With dried leaves and tree trunks, even a spark can lead to a raging fire.
- Instances of poaching and hunting, wherein the poachers set a small patch of forest on fire to divert the wild animals, can lead to such fires.
- They do not douse the fire after hunting; this particular time is very vulnerable for fires to spread quickly.
- Secondly, jungle areas are also set on fire by villagers to clear the dry leaves on the ground for easy collection of mahua flowers.
 - These flowers are used to prepare a drink which is addictive in nature.
- Villagers also believe burning patches of sal trees will lead to better growth when planted again.
- This year, along with man-made factors, an advanced heat wave with the early onset of summer further deteriorated the condition.
- A total of 399 fire points have been identified in the fringe areas bordering the forest, close to the villages, during the recent fire.

How are these forest fires controlled and prevented?

- Such fires are generally brought under control by natural rains.
- Some of the methods to prevent fires include –
 - i. forecasting fire-prone days



- ii. including community members to mitigate incidents of fire, creating fire lines, clearing sites of dried biomass
- iii. crackdown on poachers
- The forest fire lines, which are strips kept clear of vegetation, help break the forest into compartments to prevent fires from spreading.
- The forest department recently intensified its mitigation measures.
- It formed a squad each for 21 ranges across the five divisions to closely monitor the situation.
 - 1,000 personnel, 250 forest guards were pressed into action.
 - 40 fire tenders and 240 blower machines were used to contain the blaze.
- Awareness programmes are also being initiated at the community level to prevent such incidents.

12.2 Uttarakhand Floods and Texas Cold Snap

What is the issue?

- The recent Uttarakhand floods and the Texas cold snap highlighted the effects of global warming and climate change.
- In this context, here is a look at how vulnerable India is and the approach to be adopted for effective climate action.

What happened in these recent incidents?

- **Uttarakhand glacier burst** - Disaster struck Uttarakhand's Chamoli district in February 2021 in the form of an avalanche and deluge.
- It happened after a portion of the Nanda Devi glacier broke off.
- There was sudden flood in the middle of the day in the Dhaulti Ganga, Rishi Ganga and Alaknanda rivers.
 - All these are intricately linked tributaries of the Ganga.
- The floods triggered widespread panic and large-scale devastation in the high mountain areas.
- Two power projects — NTPC's Tapovan-Vishnugad hydel project and the Rishi Ganga Hydel Project — were extensively damaged.
- Scores of labourers in these projects got trapped in tunnels as the waters came rushing in.
- At least 32 people are feared dead, and over 190 missing.
- **Texas cold snap** - A historic winter storm in Texas, U.S. has killed at least 21 people.
- It left millions of Texans without power.
- It has led to killer tornadoes into the U.S. Southeast.
- The brutal cold has engulfed vast swaths of the United States.
- It led to the closure of COVID-19 inoculation centers and hindering vaccine supplies.

Is global warming the cause?

- What precipitated both the above events was human-made global warming.
- The melting of the Himalayan glaciers that prompted the floods and landslides in Uttarakhand has the fingerprints of global warming.
- The United States has already witnessed many deadly avalanches since the beginning of 2021.
- Furthermore, as glacier cover is replaced by water or land, the amount of light reflected decreases.
- This aggravates warming, a contributor to the sweltering heat in cities like Delhi and Hyderabad, or the epic floods in Chennai or Kerala.
- The extreme cold weather in Texas is connected to Arctic-peninsula warming, at a rate almost twice the global average.



- Usually, there is a collection of winds around the Arctic keeping the cold locked far to the north.
- But global warming has caused gaps in these protective winds.
- This made way for the intensely cold air to move south, a phenomenon that is accelerating.

How vulnerable is India?

- The stakes are laid out in alarming reports, which show that India is particularly vulnerable.
 - HSBC ranks India at the top among 67 nations in climate vulnerability (2018).
 - Germanwatch ranks India fifth among 181 nations in terms of climate risks (2020).
- But public spending does not reflect these perils.
- Worryingly, the Uttarakhand government and the Centre have been diluting, instead of strengthening, climate safeguards for hydroelectric and road projects.
- Studies had flagged ice loss across the Himalayas, and the dangers to densely populated catchments, but policy response has been lacking.
- Similarly, Kerala ignored a landmark study calling for regulation of mining, quarrying and dam construction in ecologically sensitive places.
 - These notably contributed to the massive floods and landslides in 2018 and 2019.

12.3 Rising Water Scarcity

What is the issue?

- World Water Day is celebrated every year on March 22. This year's theme is aptly titled 'Valuing water.'
- In this context, here is an overview of India's water scenario, the challenges and the ways to deal with it.

What is the extent of water crisis in India?

- The NITI Aayog report on 'Composite Water Management Index (2018)' underlines that over 600 million Indians face high to extreme water stress.
- Also, about 2 lakh people die every year due to inadequate access to safe water.
- According to a World Bank report, the amount of water currently available to an individual will fall below half of the 1,588 cubic meters per year by 2030.
- This will create unimaginable disaster for the majority people in India.
- Another World Bank report warns that the countries facing severe water scarcity are likely to face a 6% fall in their GDP by 2050s.

What are the other indications of water stress?

- **Dams** - The average water levels in dams in June, just before the onset of monsoon, has been declining year after year.
- This is evident from the report of the Central Water Commission on the storage level of 91 major dams.
- There have been shocking reports that perennial rivers like the Ganga, Godavari and Krishna have dried up in many places in recent years.
- There is the problem of accumulation of sediments in the water storage area of major and medium irrigation dams that are currently in use.
- Resultantly, the total storage capacity has fallen significantly.
- Many unprecedented changes are continuously reducing the total water available for future use.
- **Ground water** - The groundwater table in most part of the country has been declining every year because of over-exploitation.
- If the groundwater continues to decline unabated, meeting the country's agricultural and drinking water requirements will be a big challenge.
- 85% of rural water supply, 45% of urban water supply and over 64% of irrigation now rely on groundwater.



What are the challenges ahead and the possible measures?

- According to an estimate released by the Water Resources Ministry, a big demand-supply gap for water is going to happen by 2050.
- There is a compelling need to save water and increase its storage capacity.
- Despite this, farmers are increasingly allocating more area for cultivating water-intensive crops.
- As India's economy relies heavily on agriculture, the country needs to set right the issue of water scarcity before it inflicts irreparable damage.
- Climate change is already causing major changes in rainfall levels
- The quantum received in a day is rising substantially in recent years.
- Such a pattern is responsible for the unprecedented floods in Mumbai in 2005, Chennai in 2015, and Hyderabad in 2020.
- This being the case, the dams that can store more water needs to be constructed.
- Due to the lack of proper maintenance, the water storage capacity of small water bodies has fallen steeply.
- These waterbodies have been heavily encroached upon and even destroyed in many places.
- Immediate action must be taken to remove such encroachments.
- Also, steps should be taken to remove silt deposited in the water storage areas of the dams.

12.4 Biofuel - Lessons from Brazil

What is the issue?

- The government recently announced an ambitious plan to roll out vehicles running on 20% ethanol blended petrol by 2025, against the current level of blending of 5-6%.
- Achieving this target needs a paradigm shift in production and distribution of ethanol, the lessons for which could be taken from Brazil.

Why is Brazil notable in this regard?

- Brazil is one country that has successfully integrated biofuels into its fuel economy.
- It has efficiently leveraged its traditions and dominance in sugarcane production into a biofuel economy without compromising food security.
- Biofuels are also central to Brazil's low carbon emission strategy.

How did it achieve this?

- To mitigate high dependence on oil imports, Brazil turned to its traditional sugarcane to revolutionise its fuel economy.
- Brazil aimed for a higher productivity and sugar-ethanol balance.
- This led Brazil to revolutionise its biomass production for ethanol and develop a new variety of sugarcane.
- This is popularly known as '**energy cane**', which is low on sucrose but high on biomass.
- With productivity up to 350 tonnes of biomass per ha, against 80 tonnes per ha of traditional sugarcane, it offered a perfect balance.
- Brazil thus took up ethanol production without compromising sugar production.
- This enabled it to gradually augment its production and blend.
- With a mandatory blending of 27% ethanol with gasoline, in 2019 alone Brazil saved about 0.5 million barrels per day of gasoline with a savings of \$13 billion in imports.
- 78% of Brazilian automobiles today run on 27% of ethanol blend.
- High biomass productivity of energy-cane is the biological factor that contributes to the high positive lifecycle energy balance of ethanol produced from it.



- It thus comes with a resultant positive balance of greenhouse gases emission.
- The residual cane-waste (Bagasse) also become commercially valuable for power generation and other commercial uses.
- So, it has been possible to transform energy-cane production into a multiproduct enterprise in Brazil.

What is the significance?

- Energy cane is promising on drier and lower fertility soils, not suitable for conventional cultivation.
- Initially, economic, and strategic security reasons drove Brazil's ethanol production from sugarcane.
- But later it was realised that Brazil's was the most successful renewable energy programme from biomass.
- This especially came with the opening of the debate on the planet's environmental sustainability.
- Use of fossil fuels is one of the major sources of Co₂ and other GHG emission globally.
- Brazilian sugarcane ethanol is designated as an 'advanced biofuel' due to its 61% reduction of total life cycle GHG emissions.

How will it help with emission reduction?

- Fossil fuels consumed world-over produce an estimated 4.5 billion tonnes of Co₂ every year.
- But only a fraction of it is replenished to the earth in fossil-carbon cycle.
- However, Co₂ is a non-toxic gaseous fertiliser.
- If its production and consumption can be rebalanced, it can be beneficially used in the carbon cycle to produce non-toxic biofuel.
- Plant based biofuel seems to have an edge over all other sources of biofuels.
- This is because plants consume Co₂ from the atmosphere and give back oxygen to the atmosphere.
- Plant based biofuel thus works as a Co₂-O₂ pump or a Co₂ battery in liquid form through carbon fixation.
- Specific crops grown in large areas consume Co₂ from the atmosphere and the crop can be used to produce low Co₂ emitting biofuels.
- This is even better than the electric vehicles which do not reduce GHG but only geographically displaces the emission, unless using renewable energy.
- Experience from Brazil shows that GHG emission is the lowest from hybrid ethanol.
- With this, Brazil has proved that harmonious coexistence between biofuels and traditional fuels is possible to mitigate the factors that harm the environment.

What steps has India taken?

- Apart from the environmental issues, India's import dependence for fuel economy is alarming.
- To note, 85% of India's crude oil requirement is imported.
- To address these twin problems, some serious attempts have been made in the last few years to scale up biofuel production and blending.
- The National Biofuel Policy, 2018 has brought in certain revolutionary changes in the biofuel production philosophy of the country.
- It envisages augmentation of ethanol production through the traditional sugarcane route.
- Also, it has allowed production of alcohol from certain other sugary feedstock.
- These include sugar beet, sweet sorghum, and starchy feedstock like corn, cassava, damaged food grains, rotten potatoes, etc.
- It has also opened the production of second-generation ethanol from cellulosic agri-residues.
- E.g. rice and wheat straw, corncobs, cotton stalk, bagasse and municipal solid waste, etc
- These are welcome steps, but it may not be enough to achieve the twin objectives.

12.5 Paris Climate Track & Decarbonisation

What is the issue?

- The Ministry of Environment, Forest and Climate Change (MoEFCC) recently constituted a high-level inter-ministerial Apex Committee for Implementation of Paris Agreement (AIPA).
- In this backdrop, here is an assessment of the impact of the Covid-19 pandemic and the issue of climate crisis.

How are Covid-19 impact and climate crisis related?

- With the formation of the AIPA, India is again strengthening its global leadership role in combating climate change.
- At the same time, along with many economies, India is being severely affected by the spread and impact of the Covid-19 pandemic.
- But the good news is that recovering from the economic shocks of the Covid-19 pandemic, and avoiding severe future shocks triggered through the climate crisis, do not represent conflicting interests.
- Instead, a mutually-reinforcing coping strategy is presented with this.

What does this imply?

- India has tremendous potential for a 'green recovery' from the impacts of Covid-19.
- The decarbonisation of India's energy sector has a strong role to play in reviving the economy and the health system by –
 - i. boosting employment
 - ii. fostering rural electrification as foundation of local value creation
 - iii. unburdening national health systems by reducing the prevalence of respiratory diseases
- The various co-benefits that accompany climate action link the missions and mandates of several ministries.
- Notably, the new AIPA committee has members representing 14 ministries.
- It is perfectly suited to generate a coordinated response on climate change matters.
- Importantly it also helps maximise and coordinate the multiple social and economic co-benefits that accompany ambitious climate action.

How does this work in India?

- India can significantly boost employment by increasing the share of renewables in the energy mix.
- Renewables tend to be more labour-intensive than conventional energy technologies.
- By 2050, more than 3.5 million people could be employed in the renewable energy sector.
- This is five times more than the entire Indian fossil-fuel sector (coal, gas, nuclear) employed in 2020.
- India can also markedly improve the livelihoods of its citizens by reducing ambient air pollution.
- In a business-as-usual scenario, during 2020, almost 500,000 people will die prematurely due to exposure to particulate matter (PM10), increasing to 830,000 premature deaths during 2050.
- By moving to a more ambitious decarbonisation pathway (NDC PLUS), more than 200,000 premature deaths can be avoided.

12.6 Failure of First Inter-State Tiger Relocation Project

Why in news?

Sundari, a tigress shifted as part of India's first inter-state translocation project in 2018 from Madhya Pradesh (MP) to Odisha, was relocated back to MP.

What was the Tiger Relocation Project?

- The tiger relocation project was initiated in 2018.
- As part of this, two big cats were relocated to Satkosia Tiger Reserve in Odisha, to shore up the tiger population in the state.



- a male (Mahavir) from Kanha Tiger Reserve and a female (Sundari) from Bandhavgarh from Madhya Pradesh
- Both were selected for the translocation project as per the NTCA (National Tiger Conservation Authority) guidelines and in collaboration with the Wildlife Institute of India and the Government of India.
- The relocation was meant to serve two purposes:
 - i. reducing tiger population in areas with excess tigers to majorly reduce territorial disputes
 - ii. reintroduce tigers in areas where the population has considerably reduced due to various reasons
- The project was estimated with a budget of Rs 19 crore.
- It was started under the project of “augmentation and recovery of tiger population in Satkosia tiger reserve”.
- Six tigers (three pairs) from different reserves of Madhya Pradesh were to be sent to Odisha under the project.

Why was Satkosia Tiger Reserve chosen?

- Encompassing an area of around 960 sq km, the Satkosia Tiger Reserve spreads across four districts and has as its core area 523 sq km.
- According to NTCA, Satkosia falls under reserves where “there is a potential for increasing tiger populations”.
- Declared as a Tiger Reserve in 2007, Satkosia had a population of 12 tigers then.
- The numbers reduced to two in 2018.
- The purpose of the relocation was thus to repopulate tigers in the reserve areas.

What was the outcome of the project?

- The project ran into trouble within weeks of initiation.
- The arrival of the tigers was followed by severe protests by villagers living on the fringes of the reserve.
- Forest department officials were attacked and their offices burnt down by the villagers.
- This reaction was the outcome of displacing tribals from Raigoda in the core area to Saruali on the outskirts of the reserve.
- The villagers feared the big cats would endanger their livelihoods, lives and livestock.
- They also alleged that they were not consulted or informed prior to the translocation.
- Within months of the translocation, Mahavir was found dead.
- A field inspection report by the NTCA stated that Mahavir’s death took place due to poaching.
- Earlier, a woman was allegedly mauled to death by Sundari and another person was also killed.
- Soon, Sundari was tranquilised and shifted to an enclosure at Raigoda.
- Subsequently, the project was suspended by NTCA.

What led to the likely failure of the project?

- A major reason for the failure was the lack of confidence and trust building between the forest department and the villagers.
- Notably, the translocation was done in haste.
- The field staff and tiger reserve management were not prepared.
- Capacity for tiger monitoring was poor.
- The local communities were not taken into confidence nor conveyed the benefits from tourism that tigers could bring them.
- While Mahavir had settled down after initial exploration of the forest area, Sundari was venturing into human habitation.
- Protection was not up to the mark and the only undisturbed, prey rich habitat was already occupied by the old resident tigress.

- The already existing female tigress in the core area did not allow the presence of another tigress and chased her away.
- This caused Sundari to occupy human dominated, disturbed areas.
- Sundari's proximity to human habitations which are in abundance even close to the core area in Satkosia could have led to the human-animal conflict.
- Addressing these issues and relocating villages should be prioritised before tiger reintroduction is continued.

13. INTERNAL SECURITY

13.1 Chinese state-backed Cyber Attack Attempts

Why in news?

In the latest in a series of surveillance and hacking attempts, a Chinese state-backed hacker firm has been reported to be targeting Indian vaccine makers.

What were the earlier surveillance and hacking attempts?

- **Zhenhua & its targets** - A Shenzhen-based technology company was monitoring over 10,000 Indian individuals and organisations.
- This company, the Zhenhua Data Information Technology Co, has links with the Chinese government and the Chinese Communist Party.
- The attempt was part of the company's global database of "foreign targets".
- Its task is to -
 - collect information about relevant people from the web and social media platforms
 - track research papers, articles, patents, and recruitment positions
- The company also monitors the person's digital footprint across social media platforms and maintains an "information library".
- Those monitored in this database included -
 - i. influential political and industrial figures
 - ii. bureaucrats in key positions, judges, scientists and academicians, journalists, actors, sportspersons, religious figures, activists
 - iii. hundreds accused of financial crime, corruption, terrorism and smuggling
- The collection of such data by Zhenhua does not violate any rules under the Information Technology Act of 2000 in India.
- This is because nearly all of this data is available in the public domain.
- However, Zhenhua's 24x7 watch had raised red flags with cybersecurity experts.
- They feel that the information collected could be put together for tactical manoeuvring.
- It could thereby target the individuals under surveillance or their institutions.
- **Red Echo & ShadowPad** - Recently, Massachusetts-based cybersecurity company Recorded Future published a report.
- It said that it had observed a "steep rise" in the use of resources like malware by a Chinese group called Red Echo.
- It was used to target "a large swathe" of India's power sector.
- It said 10 distinct Indian power sector organisations were targeted.
- This included four Regional Load Despatch Centres (RLDCs) that are responsible for the smooth operation of the country's power grid by balancing the supply and demand of electricity.

- The group also targeted two Indian seaports.
- Red Echo used malware called ShadowPad, which involves the use of a backdoor to access servers.
- The Ministry of Power recently confirmed these attempts.
- It had said that “no data breach/data loss” had been detected due to the incidents.
- Also, none of POSOCO’s functions had been impacted.
 - POSOCO (Power System Operation Corporation Ltd) is the government enterprise in charge of facilitating transfer of electricity through load despatch centres.
- The government said it had taken action against the threats observed.

What is the recent Stone Panda & vaccines attempt?

- The attempts were highlighted by Goldman Sachs-backed cyber intelligence firm Cyfirma.
- The attempt was related with a Chinese hacker group known as Stone Panda.
- Stone Panda had “identified gaps and vulnerabilities in the IT infrastructure and supply chain software of Bharat Biotech and the Serum Institute of India (SII).”
 - These companies have developed Covaxin and Covishield, which are currently being used in India’s Covid-19 vaccination campaign.
 - They are also in the process of testing additional Covid-19 vaccines that could add value to efforts around the world.
- Some Indian companies involved in Covid-19 vaccine development have also faced some issues.
- They have reportedly noticed nearly hundred-fold increase in cyberattack attempts over the last 6 months.
- These were primarily by foreign entities from countries like China and Russia.

What are the key reasons for the series of attempts?

- One major factor is the border clash between the two countries, Indian and China, in June 2020.
- As bilateral tensions continue to rise, there is likely to be continued increase in cyber operations by China-linked groups in line with national strategic interests.
- China very clearly seems to be adopting and encouraging the use of cyber offensive tools and espionage.
- Even when it is not directly in charge of an offensive operation, it seems to be consistently encouraging actors to develop this capability.
- The attempts could also be part of a long-term strategy.

How is it worldwide?

- There was an increase in cyber offensive operations and incidents around the world in the second half of 2020.
- This especially targeted the healthcare and vaccine space.
- Such incidents were often attributed to actors linked with the Chinese and Russian governments.
- When vaccine companies are targeted, the motive could be competition.
- Notably, SII and Bharat Biotech have been getting global orders for their vaccines.
- Stone Panda’s attack against SII and Bharat Biotech’s IT systems was possibly to extract their intellectual property and gain a competitive advantage.

13.2 INS Karanj - Scorpene-class Submarine

Why in news?

The Indian Navy inducted its third Scorpene-class conventional diesel electric submarine, INS Karanj, into service.

What are Scorpene-class submarines?

- The Scorpene class submarines are one of the most advanced conventional submarines in the world.



- They were designed by French naval shipbuilding firm DCNS in partnership with Spanish shipbuilding firm Navantia.
- The submarine has superior stealth features, such as -
 - i. advanced acoustic silencing techniques
 - ii. low radiated noise levels
 - iii. ability to attack with precision-guided weapons on board
- The Indian Navy intends to use them for missions such as area surveillance, intelligence gathering, anti-submarine warfare, anti-surface warfare and minelaying operations.
- The submarines are armed with six torpedo-launching tubes, 18 heavy weapons, tube-launched MBDA SM-39 Exocet anti-ship missiles and precision-guided weapons.
- It can launch crippling attacks on surface and underwater enemy targets.
- Moreover, the attack submarines can travel at a maximum submerged speed of approximately 20 knots.
- They have the ability to remain submerged for 21 days.
- It has a diving depth of more than 350m.

What are the other Scorpene-class submarines?

- The first submarine of the class, INS Kalvari, was commissioned in December 2017.
- The second, INS Khanderi, was commissioned in September 2019.
- A fourth submarine, Vela, was launched into the water in May 2019 and the fifth, Vagir, in November 2020, and both are undergoing sea trials.
- The sixth is in an advanced stage of outfitting.

What are the special features of INS Karanj?

- Karanj has been equipped with the best sensors in the world.
- It is fitted with an integrated platform management system to provide centralised propulsion and machinery control.
- The powerful diesel engines can quickly charge batteries for a stealthy mission profile.
- Also, its modular construction enables upgradation to air independent propulsion in future.
- It is fitted with a permanent magnetic synchronous motor, making it one of the quietest submarines in the world.
- Karanj is also said to be the first truly indigenous submarine.

What is the history of Karanj?

- The earlier version of the submarine, which belonged to the Foxtrot class, was first commissioned in 1969 at Riga in the erstwhile USSR.
- A proposal to form a submarine arm, also referred to as the silent arm, of the Indian Navy was first envisaged in 1959.
- It was only in 1964 that the Soviet government agreed for transfer by purchase of four Foxtrot-class submarines, of which INS Karanj was a part.
- All the four constituted the 8th Submarine Squadron and played a key role during the 1970-71 Indo-Pak war.



PRELIM BITS

14. HISTORY, ART & CULTURE

Pagdi Sambhal Jatta

- Bhagat Singh's nephew says that farmer's protest against the three agrarian laws mirrors Pagdi Sambhal Jatta movement of 1907.
- In 1906, the British passed three detrimental agrarian laws - Doab Bari Act, Punjab Land Colonisation Act and Punjab Land Alienation Act.
- In 1906-1907, Ajit Singh (Bhagat Singh's uncle) started the 'Pagdi Sambhal Jatta' agitation with Lala Lajpat Rai, Kishan Singh (Bhagat Singh's father), Ghasita Ram and others to get the laws repealed.
- The laws enraged the farmers, which led to unrest across Punjab, with the British government ultimately cancelling the three laws.

Bhaona

- The Congress in Assam has tweaked Bhaona for a statement against the Citizenship (Amendment) Act and the National Register of Citizens.
- Bhaona is a dramatic form of entertainment to convey spiritualism in the Vaishnav mould. It is a presentation of the Ankia Naat of Assam.
- It was created by the saint Srimanta Sankaradeva five centuries ago.
- In Bhaona cultural glimpses of Assam, Bengal Orissa, Mathura and Brindavan can be seen.
- The Sutradhaar, or narrator begins the story, first in Sanskrit and then in either Brajboli or Assamese.
- [Brajboli or Brajavali is a literary language developed by Sankaradeva that was limited to theatrical usage.]

Shankaradeva

- Initially, Shankaradeva wrote his prose in Sanskrit but later used Assamese and Brajavali to develop the following art forms:
- Bhaona - a mythology-based theatrical performance,
- Borgeet - a new form of spiritual music, and
- Monastic dances that evolved into the classical Sattriya (a classical dance form which is a medium for propagation of Vaishnava faith).

Etikoppaka Bommalu

- Etikoppaka is a village located on the banks of the river Varaha in Vishakhapatnam district of Andhra Pradesh.
- Etikoppaka Bommalu (or Etikoppaka toys), which have Geographical Indication (GI) Tag, are the toys made of **soft wood** in this region.
- They are also called as lacquer toys because of application of **Turned Wood Lacquer Coating**.
- They are coloured with natural dyes derived from seeds, lacquer, bark, roots and leaves.

Channapatna Toys

- These are wooden toys that are made in Channapatna town in Ramanagara district, Karnataka.
- Due to the popularity of this geographical indication (GI) tagged toys, Channapatna is known as **Gombegala Ooru** (toy-town) of Karnataka.
- This toy is made by **lacquering** the Wrightia tinctoria wood (Aale mara or ivory-wood) or sandalwood or rosewood.
- Origin of these toys - Reign of Tipu Sultan who invited artisans from Persia to train the locals in toy making.
- Father of Channapatna Toy - Bavas Miya (Used Japanese technology for toys making).

Nirmal Art

- This 400-year-old rich tradition (which has a geographical indication tag) encompasses wood toys and duco paintings (Shiny paintings) as well as furniture.
- Nirmal wooden toys are exclusively made in Nirmal town in Adilabad district of Telangana.
- Rajasthan's Naqqash families, who migrated during 17th century, brought this art to Nirmal. It flourished due to the legacy of Hyderabad Nizam.
- These toys were made of finely carved softwood called Ponki chekka or white sander. They are even painted in enamel colours.

Other toys:

- Wooden toys and dolls of Varanasi, Budhni and Chitrakoot
- Clay toys of Rajasthan
- Doll of East Medinipur, Dingla and Dingli of the Kutch
- Terracotta toys of Dhubri-Assam

15. GEOGRAPHY

Sangay Volcano

- Ecuador's Sangay volcano erupted, spewing clouds of ash. Sangay volcano has been in an eruptive stage since 2019.
- [Ecuador, part of the Pacific Rim's "Ring of Fire" region, has eight volcanoes in its territory.]
- Sangay volcano - one of the world's highest active volcanoes and one of Ecuador's most active ones - is located in the northern zone of the Andes
- It is the southernmost stratovolcano (Stratovolcano is a volcano that comprises of the alternate layers of lava and ash.)
- It had frequently erupted in historic times, mostly of strombolian type.
- [Strombolian volcanic eruption comprises of mild blasts of the lava bombs, incandescent cinders and lapilli.]
- The earliest report of a historical eruption was in 1628. More or less continuous eruptions were reported from 1934 to the present.
- The constant eruptions have caused frequent changes to the morphology of the summit crater complex. The present-day volcano is built within horseshoe-shaped calderas of two previous edifices.



Baralacha Pass

- The Border Roads Organisation (BRO) would reopen the Baralacha Pass, which is a high mountain pass in Zaskar range, connecting Lahaul district in **Himachal Pradesh** to Leh district in **Ladakh**.
- Situated along the Leh–Manali Highway, it acts as a water-divide between Bhaga river and Yunam river.
- Bhaga river, a tributary of the Chenab river, originates from Surya taal lake, which is situated a few of kms from the pass towards Manali.
- Chandra, a major tributary of the Chenab River, also originates from a glacier in this region.
- The native name of Chenab, "Chandrabhaga", represents the union of Chandra and Bhaga rivers downstream.

Nag River

- The Nag River Pollution Abatement Project has been approved under the National River Conservation Plan.



- It will be implemented by the National River Conservation Directorate.
- **Nag River**, which flows through Nagpur city, is a highly polluted channel of sewage and industrial waste.
- Origin - Western weir of **Ambazari Lake** in west Nagpur.
- Nag River is the main river along with the other, River Pili Nadi.
- The Nag River and River Pili Nadi later merge, and join the **River Kanhan** near the city outskirts.

Rule Curve of Mullaperiyar Dam

- The Supreme Court said that Tamil Nadu Chief Secretary is “personally responsible” for the failure to give information on the rule curve for Mullaperiyar dam to the Court-appointed Supervisory Committee.
- **Rule curve** in a dam decides the fluctuating storage levels in a reservoir. The gate opening schedule of a dam is based on the rule curve. It is part of the “core safety” mechanism in a dam.
- The Court directed the Committee to submit a compliance report after issue directions or take steps to address the three core safety issues and,
 1. Monitoring and performance of the instrumentation of the dam,
 2. Finalising the rule curve and
 3. Fixing the gate operating schedule.

Manas National Park

- It is located at the foot hills of the Bhutan-Himalayas, Assam and is one of the first tiger reserves under Project tiger in 1973.
- It extends from Sankosh River in the west to Dhansiri River in the east.
- 1985 - Manas Wildlife Sanctuary became UNESCO World Heritage Site.
- 1989 - Manas acquired the status of a Biosphere reserve.
- River Manas flows into the National Park from the gorges of Bhutan and split into two major streams of which the main course comes out of the Park about 30 km downstream is known as '**Beki**'.
- Manas is the only landscape in the world where Terai Grasslands merge with the Bhabar grasslands interspersed with habitats ascending to Semi-Evergreen forests and then to Bhutan Himalayas.
- The last population of the Pygmy Hog survive in the wilds of Manas and nowhere else in the world.

Mahendragiri Biosphere Reserve

- Odisha government has proposed a second biosphere reserve in the southern part of the state at Mahendragiri.
- [Similipal Biosphere Reserve is Odisha's first such reserve, which was notified in 1996.]
- The area of the proposed Mahendragiri Biosphere Reserve is spread over Gajapati and Ganjam districts in the Eastern Ghats.
- Mahendragiri hill ecosystem acts as a transitional zone between the flora and fauna of southern India and the Himalayas, making the region an ecological estuary of genetic diversities.
- Mahendragiri is inhabited by the Soura people, a particularly vulnerable tribal group as well as the Kandha tribe.

Asola Bhatti Wildlife Sanctuary

- It is located on the Southern Ridge, the northern terminal of Aravalli Hills.
- It is the part of the Northern Aravalli leopard wildlife corridor.
- It is the green lung & carbon sink for country's capital, New Delhi.
- It provides a potential shelterbelt for arresting the shifting of sandunes & protection of desert storms.
- As it is located on the Delhi-Haryana border, both the governments had defined certain areas around the forests as Eco-Sensitive Zone (ESZ).



Dumping Inert Waste in Bhatti Mines

- Members of Ridge Management Board (RMB) decided to form an expert committee to study a proposal for dumping “inert material” in Bhatti mines at Asola Bhatti Wildlife Sanctuary.
- SDMC is seeking permission to dump this material in 3 former mining pits in the sanctuary and one outside it.
- It has been claimed that this inert material is waste in the form of soil and is not chemically active.
- The committee will study the impact this inert material can have if it is dumped in the mines.

Floating Solar Power Plant

- India’s biggest floating solar power plant (by generation capacity) is being developed by National Thermal Power Corporation (NTPC) Ltd.
- The 100 megawatt plant, known as Telangana Super Thermal Power Project (TSTPP), is being built in the reservoir of NTPC’s thermal plant at Ramagundam, Telangana.
- This plant is part of the renewable (solar) energy plants being developed by NTPC with a capacity of 447MW in the Southern Region, and the entire capacity would be commissioned by March 2023. It comprises,
 1. A 217 MW ground-mounted solar power plant at Ettayapuram, Tamil Nadu
 2. A 25 MW floating solar plant at Simhadri thermal power plant near Visakhapatnam
 3. A 92 MW floating solar plant at Kayamkulam in Kerala.
- As all the thermal plants would have reservoirs, establishing floating solar plants in them was the immediate available opportunity without going for any land acquisition.
- The infrastructure needed for flue gas de-sulphurisation (FGD) work is in progress in these plants would be completed by December 2022.

Ken-Betwa Link Project

- A memorandum of agreement was signed between Union Minister of Jal Shakti and the Chief Ministers of Madhya Pradesh and Uttar Pradesh to implement the Ken-Betwa Link Project (KBLP).
- Ken-Betwa Link Project is the first project under the **National Perspective Plan** for interlinking of rivers (Peninsular component).
- Under this project, water from the River Ken will be transferred to the River Betwa. Both these rivers are tributaries of river Yamuna. The project has two phases,
 - a) **Phase-I** - Daudhan dam complex and its appurtenances like Low and High Level Tunnel, Ken-Betwa link canal and Power houses
 - b) **Phase-II** - Lower Orr dam, Bina complex project, Kotha barrage
- Daudhan dam comes within the core habitat of Panna Tiger Reserve.
- **Benefit** - The project is expected to provide annual irrigation, drinking water supply and also generate 103 MW of hydropower.
- It will be of immense benefit to the drought-prone Bundelkhand region, which spreads across 13 districts of Uttar Pradesh and Madhya Pradesh.

National Perspective Plan (NPP)

- In 1980, the Ministry of Irrigation prepared a National Perspective Plan (NPP) for water resources development.
- This was introduced for inter basin water transfer in the country.
- Based on the NPP, the National Water Development Agency (NWDA) identified 30 river links.
- The NPP comprised two components:
 - a) 14 river links under Himalayan Rivers Development Component;
 - b) 16 river links under Peninsular Rivers Development Component.
- The clearances required for a river-linking project are,
 - a) Techno-economic (given by the Central Water Commission);
 - b) Forest and Environmental clearance (Environment Ministry);
 - c) Resettlement and Rehabilitation (R&R) Plan of Tribal Population (Ministry of Tribal Affairs) and Wildlife clearance



Illegal Farming in Wenlock Downs

- Over 100 hectares of the total expanse of 1,500 hectares of the last remaining grasslands in the Wenlock Downs of the upper Nilgiris is being slowly eroded by encroachments of the Todas and Kotas.
- This is because many of the Todas and Kotas have leased the “forest lands” to non-tribals in exchange for a small fee.
- A majority of these encroached lands were formerly lands to which the Todas had grazing rights to, or Toda patta lands, where the Todas were allowed to cultivate with the permission of district administration.
- However, since the early 2000s, the adivasis have stopped applying for permissions and are cultivating without proper approvals.
- The problem is that the adivasis encroach on a portion of grassland one year, and the next they lease it to outsiders and move to another portion.
- There is also the question of the Forest Rights Act in this area, as to whether it would supersede the rights acknowledged under the Toda patta lands, or whether it offers additional protection.

Wenlock Downs

- Wenlock Downs Reserve Forest is a crucial wildlife corridor, as it allows wildlife from Sigur plateau to make their way up to the upper Nilgiris.
- The landscape is also one of the last remaining patches of Shola and grasslands in the entire Nilgiris other than Mukurthi National Park.

Chilika Lake

- A study by the marine archaeology department of the National Institute of Oceanography (NIO) has found that the Chilika lake in Odisha was once part of the Bay of Bengal.
- **Formation** - The process of the formation of the Chilika, Asia’s largest brackish water lake, might have begun in the later part of the Pleistocene epoch (20,000 years ago.)
- The sea is connected with the Chilika Lake near Satapada through a shallow and narrow connecting channel, which was obstructed by shoals, sand spits and sandbars.
- The lake became shallower due to the deposition of sediments brought by the Mahanadi as outflow from the lake was restricted.
- **History** - The Chilika once acted as a safe harbour for cargo ships bound for Southeast Asia and other parts of the world.
- Greek geographer Claudius Ptolemy (150 CE) described Palur or Paloura as an important port of Kalinga that is situated close to the ‘point of departure’ outside the southern tip of the Chilika lake at Kantiagarh.
- Stone anchors and hero stones from Manikapatna, Palur and the adjoining onshore regions of the Chilika suggest that the Chilika lake was in fact a part of the Bay of Bengal.
- Chinese pilgrim Xuanzang (7th century CE) recorded ‘Che-li-ta-lo-Ching’ as a flourishing port located at Chhatargarh on the banks of the Chilika.
- Brahmanda Purana says the Chilika was an important centre of trade and commerce, with ships sailing to Java, Malaya and Ceylon.
- Sanskrit poet Kalidas called the king of Kalinga ‘Madhodhipati’ or ‘Lord of the Ocean’.

Inner Line Permit

- Uttarkhand government, in a recent meeting with Union Home Minister, had sought withdrawal of “inner-line permit” (ILP) system in Niti Valley (Chamoli district) and Nelang Valley (Uttarkashi district).
- They want the withdrawal for a better border management and expansion of tourism and other economic activities in villages there.
- The ILP system restricts movement in areas close to the border for everyone other than those with a formal permission.
- In Uttarkhand, tourists have to obtain ILP for locations near China border in the three districts of Uttarkashi, Pithoragarh and Chamoli.

- Among the 13 districts of Uttarakhand, 5 districts have borders with China and Nepal.
- Pithoragarh is strategically more sensitive as it shares boundaries with both China and Nepal.

Nelong Valley

- Nelong valley - 100 km from Uttarkashi - is an inner line area (India-China border) opened to domestic tourists only during the day.
- In Nelong valley, there are two villages - Nelong and Jadong - both of which have been abandoned since the 1962 war.
- Foreign tourists are prohibited in this area while domestic tourists are allowed entry with ILP. People cannot stay there at night.

Niti Valley

- Located at an altitude of 3600 metres, Niti village in Joshimath (Chamoli district) is the last populated village before China border.
- The Niti Pass was an ancient trade route between India and Tibet, and it was sealed after the 1962 Sino-Indian War.
- Foreign tourists can travel to Niti village after obtaining ILP from Joshimath for a single-day visit, but night stay remains prohibited.
- Domestic tourists can travel to the village any time in the year by producing any identity proof.
- The village remains populated with locals for 6 months in a year as they migrate to lower altitudes during winters due to adverse weather.

Milam Glacier

- It is a major glacier of the Kumaon Himalaya. It is located in Pithoragarh district of Uttarakhand.
- Milam village is open to tourists but movement in the valley after Lilam village is not allowed without ILP.
- Tourists come here for glacier trek. ITBP allows minimum number of tourists to enter the valley due to the risk of getting trapped in snowfalls.
- Villagers in Milam migrate to lower reaches in winters due to snowfall.

Vyas Valley

- Vyas valley, also known as Kalapani, is a Himalayan valley located in Dharchula, Pithoragarh district of Uttarakhand.
- It shares border with China and Tibet. Kuti is the last habitable village.
- Permit is required for tourists to visit Naabhi and Kuti villages. Domestic tourists require ILP to move after Chhiyalekh - 40 km before Kuti village.

16. POLITY

Bodo Peace Accord

- A Memorandum of Settlement (MoS) was signed in January, 2020 with factions of the National Democratic Front of Bodoland (NDFB), etc.
- This MoS seeks to,
 1. Increase the scope and power of Bodoland Territorial Council and to streamline its functioning;
 2. Resolve issues related to Bodo people residing outside Bodoland Territorial Area Districts (BTAD);
 3. Protect Bodo's social, cultural, linguistic and ethnic identities;
 4. Provide legislative protection for the land rights of tribals;
 5. Ensure quick development of tribal areas and rehabilitate members of NDFB factions;



6. Notify Bodo language as an associate official language in the State.

- MoS provides for establishing a Bodo-Kachari Welfare Council and to set up a separate directorate for Bodo medium schools.
- A provision is also there for a special Development package of Rs.1500 crores to undertake specific projects for the development of Bodo areas.

Places of Worship (Special Provisions) Act, 1991

- The Supreme Court asked the Centre to respond to a plea challenging the Places of Worship (Special Provisions) Act, 1991.
- **Section 3** of the Act prohibits conversion of any place of worship and maintains the “religious character” of places of worship as it was in 1947.
- **Section 4(2)** says that all suits, appeals or other proceedings regarding converting the character of a place of worship, that were pending on August 15, 1947, will come to an end when the Act commences.
- It states that no fresh proceedings can be filed. But, legal proceedings can be initiated if the conversion took place after the cut-off date.
- **Exception** - Section 5 says that the act does not to apply to Ram Janma Bhumi Babri Masjid, Uttar Pradesh. The Act also exempted,
 1. Any place of worship that is an ancient and historical monument or an archaeological site, or is covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958;
 2. A suit that has been finally settled or disposed of;
 3. Any dispute that has been settled by the parties or conversion of any place that took place by acquiescence before the Act commenced.
- Section 6 prescribes a punishment of maximum 3-years imprisonment along with a fine for contravening the provisions of the Act.

Petition

- The Places of Worship (Special Provisions) Act, 1991 was challenged on the ground that it violates secularism.
- The petitioner argued that the cut-off date is arbitrary, and it prohibits Hindus, Jains, Buddhists, and Sikhs from approaching courts to “re-claim” their places of worships which were encroached.
- There is an argument that the Centre has no power to legislate on “pilgrimages” or “burial grounds” which is under the state list.
- But, the government had said that the law was legislated using the residuary power under Entry 97 of the Union List.
- [Entry 97 confers residuary powers to the Centre to legislate on subjects that are not enumerated in any of the three lists.]

Medical Termination of Pregnancy Bill, 2020

- The Rajya Sabha passed the Medical Termination of Pregnancy (Amendment) Bill, 2020. The Bill was passed in March 2020 in the Lok Sabha, but the original Bill was framed in 1971.
- Currently, abortion requires the opinion of 1 doctor if it is done within 12 weeks of conception, and 2 doctors if it is done between 12 and 20 weeks.
- Also, women seeking to terminate a pregnancy beyond 20 weeks had to seek the permission of the court.
- The Bill allows abortion to be done on the advice of one doctor up to 20 weeks, and two doctors in the case of certain categories of women between 20 and 24 weeks.
- For a pregnancy to be terminated after 24 weeks in case of foetal abnormalities, the opinion of the State-level medical board is essential.
- To know more about the Medical Termination of Pregnancy (Amendment) Bill, 2020, [click here](#).
- Further, the subscribers of these UTs will also get the additional social security cover in the form of pension by EPFO.
- For speedy redressal of grievances, EPFO’s in-house online grievance redressal portal EPFiGMS has been extended to J&K and Ladakh.



- Benefits of the schemes like Pradhan Mantri Garib Kalyan Yojna (PMGKY), Atmanirbhar Bharat Rojgar Yojna (ABRY), etc., have been extended to the stakeholder of these UTs.

EPFO Act to Jammu & Kashmir

- The 228th meeting of Central Board of Trustees, EPF was held in Srinagar, Jammu & Kashmir.
- Employees' Provident Funds & Miscellaneous Provisions Act, 1952 was implemented in the J&K and Ladakh UTs w.e.f. 31st October, 2019.
- EPFO has set up Regional Offices at Srinagar, Jammu and facilitation Center, Leh.
- EPFO has extended its provident fund, pension and insurance benefits to all employees of existing establishments under the erstwhile J&K PF Act as well as the employees of newly covered establishments.
- Now, employers can avail EPFO services online viz. submission of e-Challan-cum-Return (ECR), payments through internet banking, Online Registration of Establishments (OLRE), etc.
- Under EPFO, the EDLI benefit has been enhanced upto Rs. 6.00 lakh for family members of the deceased employees (Earlier, it was Rs. 70,000).

Amendment to Insurance Ombudsman Rules

- The government has amended the Insurance Ombudsman Rules, 2017 to bring insurance brokers within the ambit of Ombudsman mechanism.
- Under the amended rules, policyholders can make complaints regarding deficiencies in insurance services electronically to the ombudsman.
- A complaints management system will be created to enable policyholders to track the status of their complaints online.
- Further, the ombudsman may use videoconferencing for hearings.
- The selection committee will now include an individual with a track record of promoting consumer rights or advancing the cause of consumer protection in the insurance sector.
- The ombudsman mechanism was administered by the Executive Council of Insurers, which is renamed as the Council for Insurance Ombudsmen.

Amendments to Forest Conservation Act

- Ministry of Environment, Forest and Climate Change (MoEFCC) has proposed amendments to Section 1 and 2 of the Forest (Conservation) Act, 1980 (FCA).
- It proposes two changes to strengthen the applicability of the FCA,
 1. To complete the process of forest identification in a time-bound manner,
 2. To enable the creation of 'no-go' areas, where specific projects would not be allowed.
- The amendments propose to grant exemptions to infrastructure projects like railways, roads, tree plantations, oil exploration, wildlife tourism and 'strategic' projects in the forests areas.
- Exemption is subject to terms and conditions of the central government.
- A new explanation is added to the Section 2 that states 'survey, reconnaissance, prospecting, exploration or investigation' for a future activity in the forest will not be classified as a **Non-forestry Activity**.

Forest (Conservation) Act, 1980

- Forest (Conservation) Act, 1980 is the principal legislation that regulates deforestation in the country. The FCA has only five sections.
 - a) Section 1 defines the extent of coverage of the law,
 - b) Section 2 restrictions of activities in forest areas, and
 - c) The rest deals with the creation of advisory committees, powers of rule-making and penalties.
- It prohibits the felling of forests for any "non-forestry" use without prior clearance by the central government.
- The clearance process includes seeking consent from local forest rights-holders and from wildlife authorities. The Centre may reject such requests or allow them with legally binding conditions.

- This means such survey works would not require any prior permission from the government. Only exception is if the activity falls within a wildlife sanctuary, national park or tiger reserve.
- The amendments aim to empower state governments to lease forest land to private individuals and corporations.
- If the proposed amendments come into force, they would dilute the provisions of the Supreme Court's decision in Godavarman case (1996).

Draft UGC Regulations

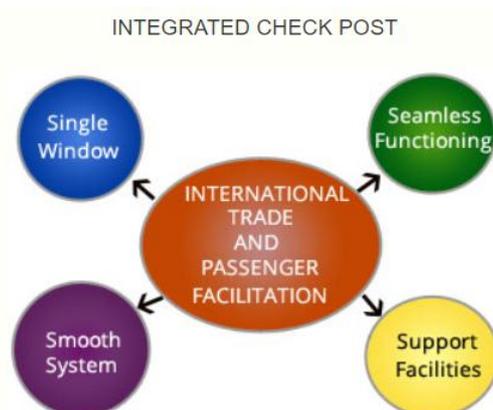
- Draft UGC (Academic Collaboration between Indian and Foreign Higher Education Institutions to offer Joint Degree, Dual Degree and Twinning Programmes) Regulations, 2021 was put for public review.
- It may effectively implement the Higher Education Institutions (HEI) aspect of National Education Policy, 2020.
- **Joint Degree programme** - The curriculum shall be designed jointly by the collaborating Indian and foreign HEIs.
- The degree shall be awarded by both the institutions with a single Certificate bearing the crests and logo of both collaborating institutions, upon completion of the programme.
- **Dual Degree Programme** shall be conferred by the Indian and foreign HEIs, separately and simultaneously, upon completion of degree requirements of both the institutions.
- **Twinning Arrangement** - Students enrolled with an Indian HEI shall undertake their study program partly in India, complying with relevant UGC regulations, and partly in the foreign HEI.
- Moreover, credits earned by the students at a foreign HEI shall be counted towards the degree/diploma awarded by the Indian HEI.

OBC Reservation

- The Supreme Court ruled that the reservation for Other Backward Classes (OBCs) is only '**statutory**', unlike the 'constitutional' reservation for Scheduled Castes and Scheduled Tribes.
- It also said that if the reservation for SCs and STs were to consume the entire 50% of seats of SCs/STs/OBCs in the concerned local bodies, the question of providing further reservation to OBCs would not arise.
- The quantum of reservation for OBCs ought to be local body specific.
- A dedicated Commission has to be set up to conduct empirical inquiry into the nature and implications of the backwardness qua local bodies, within the State.
- The proportion of reservation required to be provisioned local body wise would be specified in light of recommendations of the Commission.

Land Ports Authority of India

- The Land Ports Authority of India (LPAI) celebrated its 9th Foundation Day at its headquarters in New Delhi.
- LPAI is a statutory body established under Land Ports Authority of India Act, 2010.
- It develops, sanitizes and manages the facilities for **cross-border movement** of passengers and goods at designated points along the international borders of India.
- LPAI may put in place systems, which address security imperatives at the Integrated Check Posts (ICPs) on the border.
- It has power to manage various activities like infrastructure facilities, communication, security, etc., at an ICP.
- It can regulate and control the movement of vehicles, people and goods at the ICP with due regard to the law, security and





protocol of the Government of India.

- It can develop and provide consultancy, construction or management services, and undertake operations in India and abroad regarding ICP.

Amicus Curiae

- Solicitor General (SG) made an appeal to the Supreme Court to frame guidelines to demarcate the role and ambit of the court's amicus curiae in various cases, especially sensitive ones.
- SG's remarks came during the hearing of a case of alleged extra-judicial killings by the Army, Assam Rifles and the State police in Manipur during the heights of insurgency.
- Amicus Curiae or 'friend of the court' are the lawyers appointed by the courts to present diverse views and assist the court in specific cases.
- Amicus curiae is appointed to help the court compile facts, research the law in question and even offer a non-partisan opinion.
- An oral statement from a top government law officer in the highest court to tether amicus curiae hand-picked by the latter is significant.

Appointment of Regular CBI Director

- A plea in Supreme Court seeks appointment of a regular Central Bureau of Investigation (CBI) director.
- It seeks urgent directions from the court to the Centre to initiate and complete the process of the selection of CBI director.
- This plea has been made as the government decides to appoint an interim director for the CBI bypassing the selection procedure provided in the Delhi Special Police Establishment Act.
- The CBI director will be appointed by the Department of Personnel and Training for a two-year term, after the approval of the Appointments Committee of the Cabinet.

State Election Commissioners

- In a case about municipal council elections in Goa, the Supreme Court directed the Goa government to carry out the exercise of reservation of wards afresh and issue a fresh election schedule.
- It said that the State Election Commissioners (SECs) across the country should be **independent** and **not persons holding office** with the central government or a state government.
- **State Election Commissioners** - The SEC is to be appointed by the governor of the state. His conditions of service and tenure of office shall also be determined by the governor.
- He shall not be removed from the office except in the manner and on the grounds prescribed for the removal of a judge of the state high court.

Allotting Election Symbol

- The Supreme Court dismissed the special leave petition challenging the Kerala High Court judgments that upheld the Election Commission of India's order allotting the 'Two Leaves' symbol to Kerala Congress (M).
- The Election Commission (EC) has plenary powers under Article 324 of the Constitution to decide on the allotment of symbols.
- Election Symbols (Reservation and Allotment) Order, 1968, empowers the EC to allot symbols to the political parties at elections in Parliamentary and Assembly Constituencies.
- In every election, different symbols shall be allotted to different contesting candidates at an election in the same constituency.
- For the purpose of this Order symbols are either reserved or free.
 1. **Reserved symbol** is a symbol which is reserved for a recognised political party for exclusive allotment to contesting candidates set up by that party.

2. **Free symbol** is a symbol other than a reserved symbol.

- For the purposes of this Order and for such other purposes as the EC may specify, political parties are either recognised political parties (National or a State party) or unrecognised political parties.

Census and NPR Updation

- Ministry of Home Affairs (MHA) said that the data for the latest Census and National Population Register (NPR) will be available before the next general elections in 2024.
- The last Census was conducted in 2011 and NPR, that has a database of 119 crore residents, was last updated in 2015.
- First phase of Census-House listing and Housing Census and NPR to be conducted from April 1, 2020, was postponed due to the pandemic.
- The fieldwork for the first phase of Census 2021 that will provide data on housing conditions, household amenities and assets possessed by the households is expected in 2021-22.
- The fieldwork for population enumeration phase to provide data on demography, religion, SC/ST, language, literacy and education, economic activity, migration and fertility etc will be done in 2023-24.
- A mobile application, which will be available in 16 languages, has been developed for collecting the Census details and NPR.
- The NPR database has been created by collecting family-wise data and it can be strengthened by linking Aadhaar to each member.

17. GOVERNMENT INITIATIVES

Pradhan Mantri Swasthya Suraksha Nidhi

- The Pradhan Mantri Swasthya Suraksha Nidhi (PMSSN) is a single non-lapsable reserve fund for health in the Public Account.
- This fund will have the proceeds of 4% Health and Education Cess levied under Section 136-b of Finance Act, 2007.
- The administration and maintenance of the PMSSN is entrusted to the Ministry of Health & Family Welfare (MoHFW).
- The accruals into the PMSSN will be utilized for the flagship schemes of the Health Ministry.
- In any financial year, the expenditure on such schemes would be initially incurred from the PMSSN and thereafter, from Gross Budgetary Support (GBS).
- **Benefits** - Enhanced access to universal and affordable health care through availability of earmarked resources.

Jal Jeevan Mission

- Jal Jeevan Mission has reached a new milestone in providing over four crore rural households with a clean tap water supply.
- It envisages supplying 55 litres of safe drinking water per person per day through individual Functional Household Tap Connection (FHTC) by 2024 to all rural households.
- Nodal ministry for the implementation - Jal Shakti Ministry.
- It is based on a **community approach** to water and includes extensive information, education and communication as key components.
- It will implement source sustainability measures as mandatory elements, such as recharge and reuse through grey water management, water conservation, rain water harvesting.



- Fund sharing pattern between the Centre and states is 90:10 for Himalayan and North-Eastern States, 50:50 for other states, and 100% for Union Territories.
- It prioritizes provision of FHTCs in quality affected areas, villages in drought prone and desert areas, Sansad Adarsh Gram Yojana (SAGY) villages, etc.

Atal Bimit Vyakti Kalyan Yojana

- Atal Bimit Vyakti Kalyan Yojana is a welfare measure being implemented by the Employee's State Insurance Corporation (ESIC) on pilot basis for a period of 2 years initially. It has been extended to June 30, 2021.
- Introduced w.e.f. July 01, 2018, it offers cash compensation to Insured Persons (IPs) when they are rendered unemployed.
- **Eligibility** for the scheme are,
 - a) Employees covered under Section 2(9) of the ESI Act 1948.
 - b) IP should have completed 2 years of Insurable employment.
 - c) IP should have contributed not less than 78 days during each of the preceding 4 contribution periods preceding to the claim of relief.
 - d) The contribution in respect of him should have been paid or payable by the employer.
- **Changes made** - The eligibility conditions have been relaxed as follows for IPs who became unemployed from 24th March, 2020 onwards,
 - a) Rate of relief has been doubled from 25% to 50% average per day earning of employee.
 - b) IPs must have contributed for not less than 78 days in the contribution period immediately preceding the unemployment.
 - c) IPs must have contributed 78 days in one of the remaining 3 contribution periods in 2 years prior to unemployment.
 - d) Claim shall become due 30 days after date of unemployment. Earlier, this period was 90 days.
 - e) The claim may be submitted by an IP (need not be forwarded by the employer) in the prescribed claim form duly completed online or directly to the branch office.

Other Welfare Measures for the Unemployed

- **Aatmanirbhar Bharat Rozgar Yojana (ABRY)** Scheme incentivizes creation of new employment along with social security benefits and restoration of loss of employment during Covid-19 pandemic.
- This scheme is being implemented through the Employees Provident Fund Organisation (EPFO).
- To know more about the Aatmanirbhar Bharat Rozgar Yojana, [click here](#).
- **National Career Service (NCS)** Project is a Mission Mode Project is implemented by the Ministry of Labour & Employment.
- It aims to provide a variety of employment related services in the country like job matching, career counseling, internships, etc.
- These services available on the NCS Portal are accessible to all users including job-seekers, employers, skill providers, etc.

Rural Circuit

- Recognizing the potential of Village tourism in the country, the Ministry of Tourism has identified Rural Circuit as one of 15 thematic circuits identified for development under Swadesh Darshan Scheme.
- [Swadesh Darshan Scheme was launched for Integrated Development of theme-based Tourist Circuits for development of tourism infrastructure.]
- Ministry of Rural Development provides a list of leading sub districts to each State for selection of Non-Tribal clusters under SPMRM, within which the clusters could be identified.
- One of the parameters in the selection of these sub districts by the Ministry of Rural Development is "Presence of places of Tourism and Pilgrimage significance".
- As part of its marketing activities, the Tourism Ministry produces publicity material in potential markets under "Incredible India" brand.



CSIR Floriculture Mission

- Council of Scientific and Industrial Research (CSIR) Floriculture Mission will be implemented in 21 States and Union Territories of India.
- CSIR labs across the country to develop the land available at each lab to be set up as a model under the “CSIR Floriculture Mission”.
- Efforts are being made to take the agro-technologies, new varieties and value addition technologies with the CSIR institutions to the farmers and entrepreneurs.
- It is being implemented in collaboration with Directorate of Floriculture (ICAR); KVIC; APEDA; TRIFED; Fragrance and Flavour Development Centre (FFDC), and Universities.
- The convergence of Floriculture with Apiculture has been envisaged.
- **Mission’s focus** - Commercial floral crops, seasonal/annual crops, wild ornaments and cultivation of flower crops for honey bee rearing.
- The CSIR’s Societal Portal and an android app have been developed by CSIR Team with the help of MyGov Team.
- It is to facilitate the public to submit the societal problems that can be resolved using S&T interventions.

Compressed Biogas Plants

- Under the Sustainable Alternative Towards Affordable Transportation (SATAT) scheme, Oil and Gas Marketing Companies (OGMCs) invited entrepreneurs to procure Compressed Bio Gas (CBG).
- Under this scheme, few of the enablers have been provided. They are,
 1. Assured price for offtake of CBG with long term agreements by OGMCs;
 2. Inclusion of bio manures produced from CBG plants as Fermented Organic Manure (FOM) under Fertilizer Control Order 1985;
 3. Inclusion of CBG projects under Priority Sector Lending by RBI.
- So far, 9 CBG plants have been commissioned and started supply of CBG in Andhra Pradesh, Gujarat, Haryana, Maharashtra and Tamil Nadu.
- These plants are set up by entrepreneurs and private companies who have raised financial resources to develop these plants on the basis of LoIs issued by OGMCs.
- Technology for a plant is chosen by the entrepreneurs depending upon various factors including feedstock techno-commercial feasibility, etc.

Sustainable Alternative Towards Affordable Transportation Scheme

- It was launched by Ministry of Petroleum and Natural Gas in 2018.
- It will promote the use of Compressed Bio-Gas (CBG) production plants and make available CBG in the market for use in automotive fuels.
- It will be launched in association with PSU oil marketing companies, which invites potential entrepreneurs to set up CBG plants.

Vehicle Scrappage Policy

- This policy, proposed in the Union Budget for 2021-22, will deregister commercial vehicles in 15 years and private vehicles in 20 years if they fail to get fitness certificates.
- Every vehicle beyond the age-limit will have to undergo the mandatory automated fitness test, failing which it will be taken off the road and the owner will be fined.
- A vehicle that fails the fitness test or fails to get its registration renewed will be termed ‘end of life vehicle’.
- To discourage people from driving around in their ‘unfit’, polluting vehicles, the cost of registration renewal for old vehicles have been hiked.
- Automated Fitness Centres will be set up on a PPP model by the state government, private sector and automobile companies to provide fitness certificates.



India Science Research Fellowship

- The India Science Research Fellowship (ISRF) is given for Afghanistan, Bangladesh, Bhutan, Maldives, Myanmar, Nepal, Sri Lanka, Thailand researchers to work in Indian Universities and Research Institutions.
- It was launched by the Department of Science and Technology (DST), and it is implemented since 2015.
- ISRF programme acts as a platform to establish research cooperation with neighbouring countries of India.
- The scholars have been selected based on research proposal, experience, academic merit and publication record.

Swachhta Saarthi Fellowships

- The Office of the Principal Scientific Adviser (PSA) to the Government of India launched the “Swachhta Saarthi Fellowship”.
- This fellowship comes under the “Waste to Wealth” Mission - One of the nine national missions of the PM’s Science, Technology, and Innovation Advisory Council (PM-STIAC).
- There are **three categories** of awards under this fellowship - School students from 9th to 12th standards, College students (UG, PG, Research students) and Citizens working in the community.
- This fellowship recognizes people engaged in tackling the challenge of waste management, scientifically and sustainably.
- It will empower young students and innovators as Swachhta Saarthis and implement actions to reduce waste for a greener planet.

PM’s Science, Technology, and Innovation Advisory Council

- It facilitates the PSA Office to assess the status in specific science and technology domains, comprehend challenges in hand, formulate specific interventions, develop a futuristic roadmap and advise the PM.
- The Office of the PSA coordinates to facilitate and ensure the implementation of significant interventions by concerned government departments, agencies, and ministries.
- The PM-STIAC Secretariat is based at Invest India.
- It provides support to the Office of the PSA on project management and monitoring of the aforesaid interventions and national missions.

Pradhan Mantri YUVA Yojana

- PM YUVA Yojana is a centrally sponsored Scheme on **entrepreneurship education and training**.
- It is being implemented by the Ministry of Skill Development and Entrepreneurship (MSDE) for 2016-17 to 2020-21 period (5 years).
- It aims at creating an enabling ecosystem through entrepreneurship education, training, advocacy and easy access to entrepreneurship support network and promoting social enterprises for inclusive growth.
- The objectives of the scheme are,
 1. Educate and equip potential and early stage entrepreneurs
 2. Connect entrepreneurs in enabling networks of peers, mentors, funds and business services
 3. Support entrepreneurs through Entrepreneurship Hubs (E - Hubs)
 4. Catalyze a culture shift to encourage entrepreneurship
- It covers 10 States and 2 Union Territories - Uttar Pradesh, Uttarakhand, Bihar, West Bengal, Assam, Meghalaya, Maharashtra, Tamil Nadu, Telangana, Kerala, Delhi and Puducherry.

Rural Self Employment Training Institutes

- Rural Self Employment Training Institutes (RSETIs) is a Bank led initiative of Ministry of Rural Development.



- The Objectives of RSETIs include,
 1. Rural BPL youth will be trained for self-employment.
 2. Trainees will get intensive short-term residential self-employment training programmes with free food and accommodation.
 3. The trainings offered will be demand driven.
 4. Area in which training will be provided to the trainee will be decided after assessment the candidate's aptitude.
 5. Hand holding support will be provided for assured credit linkage with banks.
 6. Escort services will be provided for at least for 2 years to ensure sustainability of micro enterprise trainees.
- RSETIs are set up with dedicated infrastructure in each district of the country sponsored, managed and run by Banks with active co-operation from the Government of India and State Government.
- It enables a trainee to take Bank credit and start his/her own Micro-enterprise.
- It is applicable to all the categories of unemployed youth in the age group of 18-45 years, with aptitude to take up self-employment or wage employment and some basic knowledge in the related field.
- Presently, RSETIs are functional in 27 states (except Goa) and 6 UTs (except Delhi, Chandigarh and Daman & Diu).

Shyama Prasad Mukherji Rurban Mission

- It is one of the rural development schemes being implemented under the Ministry of Rural Development.
- It focuses on integrated development of rural clusters by stimulating local economic development, enhancing basic services, and creating well planned Rurban clusters.
- It develops a cluster of villages that preserve and nurture the essence of rural community life with focus on equity and inclusiveness without compromising with the facilities perceived to be urban in nature.
- Under SPMRM, 300 clusters are developed across 28 States and 6 UTs.
- Tourism related activities are among the 21 component categories under SPMRM and works are undertaken in clusters with tourism potential.
- Under SPMRM, there are 105 clusters in 30 States/ UTs where tourism related activities have been proposed.

Umbrella Schemes of Women and Child Development Ministry

- Women and Child Development Ministry has classified all its programs under three umbrella schemes - Mission Shakti, Poshan 2.0, Vatsalya.
- **Mission Shakti** is a Mission for Protection and Empowerment for Women). It will cover policies and schemes like,
 1. SAMBAL (One Stop Centre, Mahila Police Volunteer, Women's Helpline/Swadhar/Ujjawala/Widow Homes etc.)
 2. SAMARTHYA (Beti Bachao Beti Padhao, Creche, PM Matru Vandana Yojana/ Gender Budgeting/Research/ among others.)
- **Mission POSHAN 2.0** will be launched by government by merging the supplementary nutrition programme and Poshan Abhiyan.
- This will look into ways to strengthen nutritional content, delivery, outreach, and outcomes.
- The schemes include Umbrella ICDS - Anganwadi Services, Poshan Abhiyan, Scheme for Adolescent Girls, National Creche Scheme.
- **Mission VATSALYA** will look into child protection services and child welfare services.

Social Security Schemes

- As per the Periodic Labour Force Survey (PLFS) carried out by the National Sample Survey Organisation in 2017-18, the total employment in the country was around 47 crores. Out of this,
 1. Around 9 crores are engaged in the organized sector



2. Around 38 crores are engaged in the unorganized sector.
- The categories of the workers include,
 1. Establishments with 10 or more workers;
 2. Establishments with 20 or more workers;
 3. Workers engaged in unorganised sector
 - **ESI Act, 1948** is Social Security legislation applicable to all factories & notified establishments employing 10 or more persons, which are located in ESI notified areas. It does not apply to the unorganised sector as such.
 - Employees earning wages up to Rs 21,000 per month (Rs 25,000/- in the case of persons with disability) are coverable under ESI Scheme.
 - **Employees' Provident Fund and Miscellaneous Provisions Act, 1952** is applicable to the workers employed in organised sector establishments with 20 or more workers.
 - The benefits of the EPF Act, 1952 is also extended through,
 1. The Employees' Provident Funds Scheme, 1952;
 2. The Employees' Pension Scheme, 1995;
 3. The Employees' Deposit Linked Insurance Scheme, 1976.
 - **Unorganised Workers' Social Security Act, 2008** empowers the Central Government to provide Social Security benefits to unorganised sector workers by formulating suitable welfare schemes on matters like,
 1. Life and disability cover - PM Jeevan Jyoti Yojana (PMJJBY) and Pradhan Mantri Surksha Bima Yojana (PMSBY),
 2. Health and maternity benefits - Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (AB-PMJAY),
 3. Old age protection - PM Shram Yogi Maan-DhanYojana (PM-SYM) and National Pension Scheme for Traders, Shopkeeper and Self-Employed Persons (NPS- Traders)
 4. Any other benefit as may be determined by the Central Government.
 - Under the Unorganised Workers' Social Security Act, 2008, the State Governments can formulate suitable welfare schemes on the matters like housing, PFs, educational schemes, skill upgradation, old age homes etc.

Indian Ocean Research Project

- National Institute of Oceanography (NIO) researchers onboard NIO's research vessel Sindhu Sadhana will do research in the Indian Ocean to reveal the internal working of the body of the ocean at a cellular level.
- This first-of-its-kind research project of India is aimed at understanding the biochemistry and the response of the ocean to climate change, nutrient stress and increasing pollution.
- The NIO's research project will be flagged off at Visakhapatnam.
- The researchers would course the Indian Ocean from India's east coast, to Australia, then onward towards Port Louis in Mauritius and up to the border of Pakistan, off India's west coast.
- They would gather the samples for genome mapping of microorganisms in the Indian Ocean.
- Understanding the interactions of trace metals with marine biota would help us understand about nutrient cycling and productivity of oceans.

Azadi Ka Amrit Mahotsav

- 'AzadiKaAmritMahotsav', is the Government's initiative to mark 75 years of India's Independence.
- It starts the celebration of 75 years of India's Independence 75 weeks before 15th August, 2022 and extends up to Independence Day 2023.
- The idea behind is to showcase accomplishments since 1947 so as to instil a sense of pride and to create a vision for 'India@2047'.
- The commemorations will include 75 events for 75 weeks with one prominent event every week.

E3 Certification Programme

- Energy Efficiency Enterprise (E3) Certifications Programme for Brick manufacturing Sector was



launched to kick-start a series of events from Ministry of Power, under 'Azadi Ka Amrit Mahotsav'.

- The E3 Certificate will be awarded to those enterprises whose specific energy consumption will be 25% lower than the national baseline.
- Enterprises can qualify for E3 by shifting to energy efficient brick manufacturing technology and Production of lower density bricks with better thermal insulation (hollow, perforated or porous bricks).
- It will lead to cost savings to builders and energy savings to occupiers of buildings due to better thermal comfort and improved insulation properties.
- The bricks produced by E3 Certified brick units would comply with the requirements of Energy Conservation Buildings Code (ECBC).
- India is the world's 2nd largest producer of bricks. This demand would multiply 3 to 4 times over the next 20 years, through E3 Certification.

Forecasting the Cyclone-caused Damage

- National Disaster Management Authority and India Meteorological Department have developed tools for forecasting the expected damage to be caused by the landfalling cyclones over the country's coastal districts.
- These tools are a web-based Dynamic Composite Risk Analysis (Web-DCRA) & Decision Support System (DSS).
- This comes under National Cyclone Risk Mitigation Project (NCRMP) with a view to addressing cyclone risks in the country.
- This will enable the disaster managers to conduct a better assessment of the vulnerable areas and in mobilizing the structural and non-structural measures to mitigate the effects of cyclones in coastal areas.
- The National Disaster Management Authority (NDMA) will implement this project in coordination with participating State Governments.
- The Project has identified 13 cyclone-prone States and Union Territories (UTs), with varying levels of vulnerability.

GEMINI

- Indian National Centre for Ocean Information Services (INCOIS) has developed a simple handheld device named GEMINI (GAGAN Enabled Mariner's Instrument for Navigation and Information).
- This device receives the information transmitted through GAGAN and feeds that to the mobile handset through Bluetooth connection.
- An App developed by INCOIS converts the satellite messages in the form of readable maps and text.

Project RE-HAB

- As a part of Project RE-HAB (Reducing Elephant-Human Attacks using Bees), bee boxes were installed by the Khadi and Village Industries Commission (KVIC) across the elephant paths in southern Karnataka.
- These spots located on the periphery of Nagarhole National Park and Tiger Reserve, known conflict zones.
- Project RE-HAB is a sub-mission of KVIC's National Honey Mission.
- It intends to create "bee fences" by installing bee boxes along the periphery of the forest and the villages to block the entrance of elephants to human habitations.
- The bee boxes are connected with a string so that when elephants attempt to pass through, a tug causes the bees to swarm the elephant herds and dissuade them without causing any harm to them.

Nagarhole National Park

- Nagarhole National Park or Rajiv Gandhi National Park is located in Kodagu and Mysore district in Karnataka.
- It is an integral part of the Nilgiri biosphere, which holds world's single largest tiger population.
- It was established as a wildlife sanctuary in 1955 and became a national park in 1988. It was declared as a Tiger Reserve under Project Tiger in 1999.
- Nagarhole River flows through the park, which joins the Kabini River. Kabini reservoir separates the Nagarhole and Bandipur National Park.

- Bee boxes have been placed on the ground as well as hung from the trees.

Rights of OCI

- The government has notified a consolidated list of rights and restrictions of the Overseas Citizens of India (OCI).
- [Previously, these rights have been notified in 2005, 2007 and 2009.]
- OCI cardholders would need **prior permission** for a set of activities - research, journalism, mountaineering, missionary or Tablighi work, and visits to restricted areas.
- Foreign nationals granted any type of visa and OCI cardholders shall not be permitted to engage themselves in Tabligh work.
- There will be **no restriction in visiting** religious places and attending normal religious activities like attending religious discourses.
- But, **preaching** religious ideologies, making speeches in religious places, spreading conversion etc. **will not be allowed.**
- The OCIs have been granted the right of **multiple entry lifelong visa** to India for any purpose.
- They are exempted from registration with the Foreigners' Regional Registration Officer (FRRO) for any length of stay in India.
- They can enjoy this exemption provided they intimate the FRRO by email whenever there is a change in their permanent residential address and occupation.
- **Parity with Indian nationals** - OCI cardholders have been given parity with Indian nationals in the matter of domestic air fares, entry fees to monuments and public places.
- **Parity with NRIs** - They will enjoy parity with Non Resident Indians (NRIs) in adoption of children, appearing in competitive exams, etc.,
- This parity with NRIs is available in the purchase or sale of immovable property barring agricultural land and farmhouses, and pursuing professions like doctors, lawyers, architects, and chartered accountants.
- The OCIs can appear for **all-India entrance tests** such as NEET, JEE (Mains), JEE (Advanced) or such other tests to make them eligible for admission only against any NRI seat or any supernumerary seat.
- [The OCI cardholder shall not be eligible for admission against any seat reserved exclusively for Indian citizens.]
- The OCI cardholder shall have the same rights and privileges as a foreigner when,
 1. All other economic, financial and educational fields not specified in this notification or
 2. All the rights and privileges not covered by the notifications made by the Reserve Bank of India under the Foreign Exchange Management Act, 1999 (42 of 1999).

OCI Guidelines

- Now, people of Indian origin (PIO) and Indian diaspora having overseas citizens of India (OCI) card are not required to carry their old passports, along with the new passport and OCI card, for travel to India.
- As per the current OCI guidelines (in force since 2005), an OCI card is to be re-issued each time a new passport is acquired by the cardholder up to the age of 20 years or after completing 50 years of age.
- Now, the Indian government has decided to grant extension of time till December 31, 2021, to get the OCI cards re-issued.

Particularly Vulnerable Tribal Groups

- As in March 2021, India has 75 Particularly Vulnerable Tribal Groups across 18 states and Union territory of Andaman and Nicobar Islands.
- Characteristics of Particularly Vulnerable Tribal Groups (PVTG's)
 1. PVTGs have declining or stagnant population,
 2. Low level of literacy,
 3. Pre-agricultural level of technology,
 4. Economically backward,
 5. Generally inhabit remote localities having poor infrastructure and administrative support.
- Among the 75 listed PVTGs, highest number is in Odisha (13 PVTGs).
- All the 4 tribal groups in Andaman, and 1 in Nicobar Islands, are PVTGs.
- Largest population size among the PVTGs is Saharia people of Madhya Pradesh and Rajasthan. Smallest population size is the Sentineles.

SAAMAR Campaign

- Jharkhand government launched the SAAMAR (Strategic Action for Alleviation of Malnutrition and Anaemia Reduction) campaign to tackle malnutrition in the state.
- SAAMAR campaign aims to identify anaemic women and malnourished children through Anganwadi Centres, and subsequently they will be treated at the nearest Malnutrition Treatment Centre.
- The campaign converges various govt. departments and engagement with school management committees, gram sabhas among others.
- It has been launched with a 1000 days target, under which annual surveys will be conducted to track the progress.
- It also tries to target Primarily Vulnerable Tribal Groups (PVTGs).
- SAMAAR will capitalize on the Tejaswini Project functioning in the 17 districts of the state where youth communities of adolescent girls and women are being trained in various skills, entrepreneurship and for jobs.
- All these adolescent girls and women will be educated on nutritional behaviour, and will be given a health and nutrition card.

Schemes for Particularly Vulnerable Tribal Groups

- Ministry of Tribal Affairs implements the Scheme of "Development of PVTGs" exclusively for them.
- Under this scheme, Conservation-cum-Development (CCD) / Annual Plans are to be prepared by each State / UT for their PVTGs based on their need assessment.
- These assessments are then appraised and approved by the Project Appraisal Committee of the Ministry.
- Also, priority is assigned to PVTGs under the schemes of
 - a) Special Central Assistance (SCA) to Tribal Sub-Scheme (TSS),
 - b) Grants under Article 275(1) of the Constitution,
 - c) Grants-in-aid to Voluntary Organizations working for STs' welfare
 - d) Strengthening of Education among ST Girls in Low Literacy Districts.

18. BILATERAL RELATIONS

Turing Scheme

- Having left the European Union's Erasmus scholarship programme after Brexit, the United Kingdom launched its own replacement called the Turing scheme - Named after the English mathematician Alan Turing.
- Starting in 2021-2022, it would enable schools, colleges and universities in the UK to apply for government funding to allow students to study and work across the globe.
- After schools and universities apply for funding for exchanges, university study and work placements, they can invite their students to apply for individual funding.



- The scheme would be a global programme in which every country in the world will be able to partner with UK institutions.
- [This is in contrast with the Erasmus+ programme, which only included European countries.]
- It targets students from disadvantaged backgrounds and areas from where not many could benefit under the previous Erasmus+ scheme.
- The UK's Department for Education (DfE) has confirmed that India could be among the leading list of countries with which the UK universities seek to strike student exchange projects.

Bangladesh - LDC to a Developing Country

- The UN Committee for Development Policy (CDP) has recommended graduation of Bangladesh from the category of Least Developed Country (LDC) to the category of Developing Country.
- The CDP decides on the LDC status of a country based on three criteria,
 1. Per capita income,
 2. Human Assets Index,
 3. Economic Vulnerability Index.
- A country must achieve two of the three criteria at two consecutive triennial reviews to be considered for graduation.
- Bangladesh has met for the second time all the three eligibility criteria for graduating from the LDC category to the developing nations category.
- This proposal will be sent to the UN Economic and Social Council (ECOSOC) for endorsement, late to the UN General Assembly (UNGA).
- Usually countries are given 3 years for transition but this year due to the pandemic, Bangladesh has been given 5 years i.e. upto 2026.

US India Artificial Intelligence Initiative

- The Indo-U.S. Science and Technology Forum (IUSSTF) has launched the U.S. India Artificial Intelligence (USIAI) Initiative.
- [IUSSTF is a bilateral organization funded by the Department of Science & Technology (DST), Governments of India, and the U.S. Department of States.]
- USIAI focuses on Artificial Intelligence (AI) cooperation in critical areas that are priorities for both countries.
- It will provide an opportunity for key stakeholder groups to discuss opportunities, challenges, and barriers for bilateral R&D collaboration.
- It will serve as a platform to enable AI innovation, help share ideas for developing an AI workforce, and recommend modes and mechanisms for catalyzing partnerships.

Digital Green Certificates

- The European Commission proposed to create a Digital Green Certificate to facilitate the safe and free movement of citizens within the European Union (EU) amid the COVID-19 pandemic.
- This certificate proves that a person has been vaccinated against covid-19, or has received a negative test result or has recovered from covid-19.
- This digital or paper format certificate with a QR code will be free of charge. It can be issued by authorities, including hospitals, testing centres and health authorities.
- Once the proposal for digital certificates is finalised, it will be accepted in all EU countries.
- All EU citizens or third-country nationals who are legally staying in the EU can use these certificates to be exempted from free movement restrictions.
- If an EU member country requires a person to quarantine or undergo a test, it must notify the Commission and all other member states justifying its decision.

- When it comes to waiving free movement restrictions, Member States will have to accept vaccination certificates for vaccines which received EU marketing authorisation.

19. ECONOMY

Government Security

- Government Security (G-Sec) yields could soften temporarily as the Indian government's fiscal deficit may undershoot FY2021 Revised Estimate (RE) by ₹50,000 crore to ₹90,000 crore.
- G-Secs are a **government debt issuances** used to fund daily operations, and special infrastructure and military projects.
- They guarantee the full repayment of invested principal at the maturity of the security and often pay periodic coupon or interest payments.
- As they are issued by the government, they are considered to be risk-free.
- The trade-off of buying these securities is that they tend to pay a lower rate of interest than corporate bonds.
- Investors in G-Sec will either hold them to maturity or sell them to other investors on the secondary bond market.

Nifty50 PE Ratio

- The National Stock Exchange announced a change to the Nifty50's Price-Earnings (PE) ratio calculation that promises to reduce the Nifty PE.
- Seasoned investors and professional fund managers use the Nifty 50's PE number to quickly gauge if markets are expensive or cheap.
- Nifty PE will drop from 40 times to about 35 times on March 31, 2021.
- So far, Nifty PE ratio has been calculated based on standalone earnings of the 50 companies that make up the index for the trailing 4 quarters.
- Now, it plans to use **consolidated earnings** - A more accurate representation of the true profitability and valuation of Nifty companies.
- But, standalone earnings of a company reflect only the profits made by it alone, without considering the operations of its subsidiaries.

Software Royalty Tax Dispute

- The Supreme Court ruled that cross-border payments made by Indian buyers to a non-resident for use or resale of computer software, through end-user licence agreements (EULA), are not to be taxed as "**royalty**".
- The ruling reasoned that payment of royalty is only for exclusive use of copyright of a work under a non-exclusive licence.



SOFTWARE ROYALTY TAX DISPUTE

I-T Department role <ul style="list-style-type: none">• Broadly characterised the payments made to non-residents for software purchase as royalty.• It was based on the slant that when a software is sold, the incorporated program is licensed to the end user• Averred that the Indian entity is granted the rights to exploit the intellectual property or copyright in the software.• Consequently, the payment for such purchases amounts to royalty income for the seller.	What taxpayers have persistently contended? <ul style="list-style-type: none">• These transactions are sale simpliciter and do not entail licensing of any copyright.• The non-resident owner retains the proprietary rights in the software and the use of the software by the Indian company is limited to making backup copy and redistribution.• Payment received for sale of computer software is business income• In the absence of a business presence or permanent establishment of the seller in India, such business income is outside the ambit of taxation.	Legislative arrangement <ul style="list-style-type: none">• Retrospective amendment introduced via Finance Act 2012 to extend the applicability of provisions for royalty.• It explicated that irrespective of channel via which software gets transmitted, payments for a right to use computer software would be taxable as royalty income.• Taxpayers argued clarification was against the provisions of tax treaties
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Litigations

- In 2005, the income tax department sent notices to several taxpayers for payments made on import of software
- The earliest cases involved Lucent Technologies Hindustan Ltd., Samsung Electronics Company Ltd, and Sonata Software Ltd
- In the past, the issue saw legal battle with two most important and conflicting rulings
- In the case of Samsung Electronics Karnataka HC ruled in favour of the Tax Department
- However in the case of Ericsson, Delhi HC ruled in favour of taxpayers
- Various courts have taken divergent views on this matter, resulting in vast uncertainty and ambiguity in the minds of taxpayers

Appeal before Supreme Court

Total of 107 appeals, including that from Samsung Electronics Co, IBM India, Hewlett Packard India, Mphasis, Sonata Software, GE India, Lucent Technologies Hindustan, and others

Experts' take

This issue has been quite convoluted and remained an apple-of-discord for multiple years. The ruling of the Supreme Court was much awaited and will put to rest open litigation on this issue. Though many cross-border software payments would be relieved from royalty tax, these transactions could still be covered under the expanded equalisation levy that was introduced in April last year. This ruling also depicts that Indian courts shall not deny treaty benefit to the deserving taxpayers.

- **Rakesh Nangia**, chairman, Nangia Andersen India
This is a welcome judgement which not only brings certainty on the two decade long debate, but also vindicates the non-taxability stand on software payments by reinforcing supremacy of tax treaties entered into by two sovereigns over the domestic law.

- **Vishal Malhotra**, National Tax Leader - TMT, EY India

- The Indian buyer only receives the right to use the software, but does not get any copyright on the software.
- Hence, the amount paid does not qualify as royalty for which tax should be deducted at source under Section 195 of the I-T Act.

New Umbrella Entities

- Companies with any presence in India's tech or financial services ecosystem are making a beeline to set up new umbrella entities (NUEs).
- NUE is the Reserve Bank of India's (RBI's) idea to create an alternate mechanism to the National Payments Corporation of India (NPCI).
- Currently, the umbrella entity for providing retail payments system is NPCI, which is a non-profit entity, owned by banks.
- The RBI has set a deadline of March 31 for firms to submit their applications for setting up NUEs for payment systems.
- An NUE will be a non-profit entity that will set-up, manage and operate new payment systems, especially in the retail space such as ATMs, white-label PoS; Aadhaar-based payments and remittance services.
- In addition to this, they will develop new payment methods, standards and technologies as well as operate clearing and settlement systems.
- Only those entities that are owned and controlled by Indian citizens with at least 3 years experience in payments segment can become promoters of NUEs.
- Also, foreign investment is allowed in NUEs as long as they comply with the existing guidelines.

Green Bonds

- India has announced its intention to achieve all the United Nations Sustainable Development Goals (SDG) by 2030.
- The evolution of green finance came into being when the first green bond was issued in 2015 (This is an alternative to Kuznets hypothesis that is used by the developed countries to achieve SDG goals).
- **Green bond** is a fixed-income instrument designed specifically to support specific climate-related or environmental projects.
- It encourages sustainability and more specifically, green bonds finance projects aimed at energy efficiency, pollution prevention, etc.
- Such bonds also finance the cultivation of environmentally friendly technologies and the mitigation of climate change.
- The key features involving the green bond market in India include:
 1. The market commenced with banks issuing green bonds. The share of corporates is now increasing, similar to the situation abroad
 2. Use of green label and certification is increasing, with many issuers opting for post-issuance certification
 3. Corporates issue green bonds for a period of 3-5 years. Banks opt for a longer tenure, i.e., 5-10 years
 4. The US dollar and Indian Rupee are two preferred currencies. The National Thermal Power Corporation and the International Finance Corporation started the overseas 'Masala Bond' market.

Basic Customs Duty

- The government has decided to levy basic customs duty (BCD) on solar cells and modules from April 1, 2022, which will lead to increase in solar power tariff rates.
- BCD would also be applicable for already bid out projects. So, the time-frame for which BCD would be applicable is uncertain, which results in an additional risk for domestic manufacturers in incurring capex.
- Further, it would reduce the overall attractiveness of solar projects to off-takers and end-consumers.

- As BCD covers imports from all countries, it minimises any scope for imports being routed from any country outside India.
- If domestic manufactures become competitive with time by reducing their cost against the imported modules and cells, BCD may come down.

New Rules for Trusts and Non-profit Organisations

- The Central Board of Direct Taxes (CBDT) has notified a new set of rules and application forms for trusts and non-profit organisations, which will help them to get tax exemption for their own income.
- Under the Section 10 of the Income Tax Act, there are incomes from certain funds, universities, educational institutions, hospitals, etc, that are not included in the total income for the taxation purpose.
- Contributions made to certain relief funds and charitable institutions can be claimed as a deduction under Section 80G of the Income Tax Act.
- But, only those donations made to the prescribed funds and institutions that have been defined in the notification qualify as a deduction.
- These rules and forms indicate the procedure and details to be complied in the forms for seeking registration of charitable & religious entities, hospitals, etc.
- As per Section 12A, the requirement for registration has been mandated for all the existing registered entities under 12AA as well as for the new entities seeking provisional registration.

20. ENVIRONMENT

Purple Revolution

- Council of Scientific and Industrial Research-Indian Institute of Integrative Medicine, Jammu announced phase 2 of purple revolution under Aroma Mission, after the success of the phase 1 in Doda, Jammu.
- Under the purple revolution, the farmers in Doda district had their incomes quadrupled after shifting from maize to lavender cultivation.
- First-time farmers were given free lavender saplings and those who have cultivated lavender before were charged Rs. 5-6 per sapling.
- The farmers will get help from IIIM-Jammu to sell their produce.
- Farmers could reach the four distillation units set up by CSIR-IIIM Jammu in Doda for extraction of lavender oil.
- At present, large-scale lavender cultivation is limited to J&K but governments in Himachal Pradesh, Arunahal Pradesh and Uttarakhand are also encouraging their farmers to take up lavender.
- **Purple Economy** - Lavender oil sells for at least Rs 10,000 per litre
- Lavender water can be separated from lavender oil. It is used to make incense sticks.
- Hydrosol is formed after distillation from the flowers. It is used to make soaps and room fresheners.

Aroma Mission

- In 2016, the Centre launched Aroma Mission to boost cultivation of plants for essential oils which have aromatic medicinal properties.
- The mission supports domestic aromatic crop based agro economy to move from imported aromatic oils to homegrown varieties.
- Nodal laboratory - CSIR-Central Institute of Medicinal and Aromatic Plants (CSIR-CIMAP), Lucknow.
- Participating laboratories - CSIR-Institute of Himalayan Bioresource Technology (CSIR-IHBT), Palampur; CSIR-Indian Institute of Integrative Medicine (CSIR-IIIM), Jammu etc.

Coalition for Disaster Resilient Infrastructure

- The 27-member European Union (EU) joins India-led Coalition for Disaster Resilient Infrastructure (CDRI) initiative.



- CDRI was launched by Indian Prime Minister at the UN Climate Change Summit (2019).
- It is a multi-stakeholder global partnership of country governments, UN agencies, multilateral banks, private sector and knowledge institutions.
- It promotes the resilience of new and existing infrastructure systems to climate and disaster risks in support of Sustainable Development Goals' (SDG).
- With the CDRI Secretariat at New Delhi, the members are 22 countries and 7 organisations.
- CDRI's strategic priorities - Technical Support and Capacity-building, Research and Knowledge Management, Advocacy and Partnerships.

Miyawaki Technique

- In a year, a patch of land in Mumbai's eastern suburbs has become a testament to create the "urban forests" through the Miyawaki technique.
- Miyawaki is an **afforestation technique** to create urban forests based on the work of Japanese botanist Akira Miyawaki in the 1980s.
- Miyawaki forests are tiny forests grown on small plots of land in 2 to 3 years and are self-sustaining, like how a forest is.
- Three layers of greens - shrubs and undergrowth, medium-height trees and taller canopies - are integral components of the Miyawaki forests.
- Before plantation, local agro-climatic conditions are studied. Around 3 to 4 saplings per sq. m of 30 or more native varieties of plants are planted.
- Mulching, natural water retention and perforation material like rice husk and use of organic compost, cow dung support their growth.

Flowering of Bamboo - A Threat

- Bamboo groves of Wayanad Wildlife sanctuary, and Mudumalai Tiger Reserve and Gudalur forest division in Tamil Nadu have fully bloomed.
- [The flowering of bamboo is a phenomenon said to occur once in the life cycle of bamboo plants.]
- With the advent of the season, migration of wild animals starts from the adjacent sanctuaries in Karnataka and Tamil Nadu to Wayanad due to shortage of fodder and water.
- Bamboo groves in the Wayanad forest are the mainstay of herbivores in the Nilgiri biosphere during summer.
- The recent flowering may adversely affect migration of wild animals owing to the mass destruction of bamboo groves after the flowering.
- Moreover, 25% of bamboo groves in Wayanad and nearby sanctuaries have bloomed since 2010, and the phenomenon is continuing.

Bamboo Regeneration

- Thorny bamboo (*Bamboosa bambos*) is a monocarpic (flowering only once) plant belonging to the grass family. Its flowering cycle varies from 40 to 60 years.
- Profuse natural regeneration occurs from seeds after flowering.
- Seeds have no dormancy, and it helps germination under favourable conditions soon after seed fall.

3D-printed Clay Seabed

- 3D printed tiles that work as an artificial clay seabed for corals to latch onto and thrive, is used to restore Hong Kong's fragile coral reefs.
- Around 84 species of coral are found in Hong Kong's waters, more diverse than those found in the Caribbean Sea.
- Providing suitable ground for the coral larvae to latch onto and build a new home will help in repopulating a dead or damaged reef.
- The coral fragments on the tiles definitely survive better than the traditional way of transplantation.



- Tiles used in this project are made with terracotta. Clay is basically soil, and it is found everywhere on earth. So, water chemistry is unchanged.

Inter-state Tiger Relocation Project

- As the first attempt under this project was unsuccessful, Sundari, the tigress, started from Odisha's Satkosia Tiger Reserve to her home in Madhya Pradesh's Kanha National Park.
- In 2018, as part of India's first Inter-state Tiger Relocation Project, Mahavir and Sundari were the first pair of tiger and tigress sent from Panna and Bandhavghar respectively to Satkosia.
- Sundari and Mahavir were brought to Odisha as a solution to the dwindling tiger population in Odisha.
- This project was approved by the National Tiger Conservation Authority (NTCA) in 2017 to augment and recover tiger population in Odisha.

SPECIES IN NEWS

Black-browed Babbler

- After a long time, a solitary black-browed babbler was spotted in south-eastern Kalimantan in Indonesian Borneo.
- This small brown-grey songbird was stout, with a relatively short tail and a robust bill with a black eye-stripe running all the way around its head.
- This bird is often called 'the biggest enigma in Indonesian ornithology.'
- IUCN Red List - "Data Deficient" category.

Himalayan Serow

- A Himalayan Serow has been spotted in Manas Tiger Reserve, Assam.
- It is a mammal that is somewhere between a goat and an antelope, which is a high-altitude dweller found 2,000-4,000 metres above sea level.
- International Union for Conservation of Nature (IUCN) Red List of Threatened Species Status - '**Vulnerable**'.
- It is listed under **Schedule I** of The Wildlife Protection Act, 1972, which provides absolute protection.
- A black-necked crane (Near-threatened) and white-bellied heron (Critically Endangered) were also recently sighted in Manas.

Platypus

- To promote breeding and rehabilitation of platypus that faces extinction due to climate change, the world's first platypus refuge would be built in Australia.
- Platypus is one of the five species of monotremes, the only mammals that lay eggs instead of giving birth to young ones.
- This duck-billed mammal is the only animal in the world to have a beak, fur and webbed feet.
- It is endemic to eastern Australia, including Tasmania, where it is classified as an endangered species.
- International Union for Conservation of Nature (IUCN) Red list Status - **Near Threatened**.

Red Rice

- In a major boost to India's rice exports potential, the first consignment of 'red rice' was flagged off to the USA.
- This rice variety is called '**Bao-dhaan**' - Integral part of Assamese food.
- 'Red rice' is grown in **Brahmaputra valley** of Assam, without the use of any chemical fertilizer. It is rich in **iron**.



- Agricultural and Processed Food Products Export Development Authority (APEDA) has promoting rice exports through the Rice Export Promotion Forum (REPF).
- REPF has representations from rice industry, exporters, officials from APEDA, Ministry of Commerce.
- It has directors of Agriculture from major rice producing states - West Bengal, Uttar Pradesh, Punjab, Haryana, Telangana, Andhra Pradesh, Assam, Chhattisgarh and Odisha.

Cicadas

- Cicadas are insects, which are physically distinguished by their stout bodies, broad heads, clear-membraned wings, and large compound eyes.
- They are famous for their penchant for disappearing entirely for many years, only to reappear in force at a regular interval.
- The species of cicadas fall into roughly two categories:
 1. Annual cicadas (Spotted every year, but lives for 2 to 5 years)
 2. Periodical cicadas (Spend most of their lives underground and only emerge once in a decade or two.)
- While annual cicadas can be found throughout the world, periodical cicadas are unique to North America.
- The cicada life cycle has three stages - Eggs, nymphs and adults.
- Cicada nymphs spend their developmental period in underground to suck the liquids of plant roots before molting their shells and surfacing as adults to lay eggs.
- Unlike locusts, cicadas don't eat vegetation but rather drink the sap from tree roots, twigs, and branches.
- They are known for their buzzing and clicking noises.

Seabuckthorn Plantations

- Himachal Pradesh government has decided to start planting seabuckthorn in the cold desert areas of the state.
- Seabuckthorn (or chharma) is a shrub that produces an orange-yellow coloured edible berry.
- In India, around 15,000 hectares in Himachal, Ladakh, Uttarakhand, Sikkim and Arunachal Pradesh are covered by this plant.
- It is found above the tree line in Himalayas, generally in dry areas such as the cold deserts of Ladakh, Lahaul and Spiti, and Kinnaur.
- **Benefits** - As a folk medicine, seabuckthorn has been widely used for treating stomach, heart and skin problems.
- Its fruit and leaves rich in vitamins, carotenoids and omega fatty acids, among other substances help people acclimatise to high-altitude.
- Besides being a source of fuel wood and fodder, seabuckthorn is a soil-binding plant which prevents soil-erosion, checks siltation in rivers and preserves floral biodiversity.

Butea monosperma

- Butea monosperma tree is now in bloom across the Nilgiris. Generally, they bloom from January to March.
- Native to India, this small to medium sized deciduous tree wear more flowers than leaves. Flowers are bright orange with a unique petal shape, hence called '**flame of the forest.**'
- Each flower consists of five petals with a very curved beak-shaped keel. This keel gives it the name, **Parrot Tree.**
- In Manipur, when a member of the Meitei community dies, and his body cannot be found, the wood of this tree is cremated in place of the body.
- A postal stamp was issued by the Indian Postal Department to commemorate this flower.



- Also known as **Bastard teak**, this tree is widely grown in South Asia, and has multiple purposes, with a range of medicinal and other uses.

New Red Algae Species

- Two new species of red seaweed have been discovered by marine biologists from Central University of Punjab (The genus *Hypnea* includes red seaweeds.)
 1. *Hypnea indica* - Discovered from Kanyakumari in Tamil Nadu, and Somnath Pathan and Sivrajpur in Gujarat.
 2. *Hypnea bullata* - Discovered from Kanyakumari and Diu island of Daman and Diu.
- Another species, *Hypnea nidifica*, has been found for the first time in Indian coasts.
- Including the two new species, there are 63 species in the genus *Hypnea* globally.
- The genus *Hypnea* consists of calcareous, erect, branched red seaweeds.
- They grow in the intertidal regions of the coast, namely the area that is submerged during the high tide and exposed during low tides.
- **Uses** - Species of *Hypnea* contain the biomolecule carrageenan, which is widely used in the food industry.
- **Threat** - Algae with calcareous mineral deposits are prone for the damage from ocean acidification, an aftermath of climate change.

21. SCIENCE AND TECHNOLOGY

SPACE

Blockchain in Space

- JP Morgan has successfully tested a space-based payment infrastructure utilising blockchain technology, using GomSpace's satellites.
- It is the world's first bank-led tokenised value transfer in space.
- It was executed via smart contracts on a blockchain network that was established between two GOMX-4 satellites orbiting the earth in the low Earth orbit (LEO).
- This has validated the approach towards a decentralised network where communication with the earth is not necessary.
- It may lead to a potential peer-to-peer satellite marketplace in the long term, allowing data transfers between satellites against payment.

Earth Observation Satellites

- It is a remote sensing satellite designed for Earth observation (EO) from orbit, including spy satellites and those used for non-military uses.
- Starting with IRS-1A (1988), ISRO has launched many operational remote sensing satellites.
- 13 satellites in Sun-synchronous orbit - Resourcesat-1, 2, 2A; Cartosat-1, 2, 2A, 2B; RISAT-1,2; Oceansat-2; Megha-Tropiques; SARAL; SCATSAT-1.
- 4 satellites in Geostationary orbit - Kalpana; INSAT 3A, 3D, 3DR.
- These satellites provide data in diversified spatial, spectral and temporal resolutions to cater to different user requirements - agriculture, urban planning, mineral prospecting, environment, etc.

GISAT-1

- Indian Space Research Organisation (ISRO) plans to launch GISAT-1 into space using GSLV-F10 rocket.
- Geo Imaging Satellite-1 or GISAT-1 is India's first earth observation satellite in a geostationary orbit.
- The rocket will place GISAT-1 in geosynchronous orbit, and subsequently in geostationary orbit, using its onboard propulsion system.
- GISAT-1 will facilitate near real-time observation of the Indian sub-continent, under cloud-free condition, at frequent intervals.

- With onboard high resolution cameras, the satellite will allow India to monitor the Indian land mass and the oceans, particularly its borders.
- It would help in quick monitoring of natural disasters, episodic and any short-term events.
- It will obtain spectral signatures of agriculture, forestry, mineralogy, disaster warning, cloud properties, snow and glacier and oceanography.

Sounding Rockets

- Indian Space Research Organisation (ISRO) has launched RH-560, a sounding rocket to study altitudinal variations in the neutral winds and plasma dynamics.
- Sounding rockets are one or two stage solid propellant rockets used for probing the upper atmospheric regions and for space research.
- They serve as platforms to test or prove prototypes of new components or subsystems intended for use in launch vehicles and satellites.
- It is possible to conduct coordinated campaigns by simultaneously launching sounding rockets from different locations in a single day.
- ISRO started launching indigenously made sounding rockets from 1965.
- In 1975, ISRO consolidated all its sounding rocket activities under the Rohini Sounding Rocket (RSR) Programme.
- RH-75 was the first truly Indian sounding rocket from the Thumba Equatorial Rocket Launching Station (TERLS) [Numbers in the name indicates the diameter of the rocket in mm]

Operational sounding Rockets

Currently, three versions are offered as operational sounding rockets, which cover a payload range of 8-100 Kg and an apogee range of 80-475 km.

Vehicle	RH-200	RH-300-Mk-II	RH-560-MK-II
Payload (in kg)	10	60	100
Altitude (in km)	80	160	470
Purpose	Meteorology	Aeronomy	Aeronomy
Launch Pad	Thumba Balasore	SDSC-SHAR	SDSC-SHAR

Small Satellite Launch Vehicle

- The maiden flight of Small Satellite Launch Vehicle (SSLV) - ISRO's compact launcher - will be made soon.
- SSLV will meet the "launch on demand" requirements in a cost-effective manner for small satellites in a dedicated and ride-share mode.
- It is a three-stage all solid vehicle that can launch up to 500 kg satellite into 500 km Low Earth Orbit and 300 kg into Sun Synchronous Orbit.
- With lower per kg launch cost, the mini launcher will have multiple satellite mounting options for nano, micro and small satellites.
- SSLV can be assembled in 3 days (PSLV needs 60 days).

Aries-Devasthal Faint Object Spectrograph

- Aries-Devasthal Faint Object Spectrograph & Camera (ADFOSC) is an optical spectrograph, which is indigenously designed and developed by Aryabhata Research Institute of observational sciences (ARIES).



- This low-cost spectroscope, India's largest astronomical spectrograph, has been commissioned on the Devasthal Optical Telescope (DOT).
- It can **locate extremely faint light sources** from distant quasars and galaxies in a very young universe, regions around supermassive black-holes around the galaxies, and cosmic explosions.
- It uses a complex arrangement of lenses made of glasses, polished to better than 5-nm smoothness to produce sharp images of the sky.
- Photons coming from distant celestial sources, collected by the telescope, are sorted into different colours by the spectrograph.
- Then, this will be converted into electronic recordable signals using an in-house Charge-Coupled Device (CCD) camera cooled to -120°C.

PSLV-C51/Amazonia-1 Mission

- Indian Space Research Organisation (ISRO) has launched Brazil's Amazonia-1 satellite along with 18 co-passenger satellites onboard the Polar Satellite Launch Vehicle (PSLV-C51).
- PSLV-C51 is the 53rd flight of PSLV and 3rd flight of PSLV in 'DL' configuration (with 2 solid strap-on boosters).
- Orbit - Sun synchronous polar orbit.
- The 18 co-passenger satellites onboard PSLV-C51 includes four from IN-SPACE and fourteen from NewSpace India Ltd (NSIL).
- NSIL had collaborated with USA for this mission.
- These satellites are intended for providing Radio relay services.

Amazonia-1

- It is the first dedicated commercial mission of NSIL, a Government of India Company under Department of Space.
- Amazonia-1 is the optical earth observation satellite of the **Brazil's** National Institute for Space Research (INPE).
- It would provide remote sensing data to users for monitoring deforestation in Amazon region and analysis of diversified agriculture across the Brazilian territory.

NISAR

- Indian Space Research Organisation (ISRO) and National Aeronautics and Space Administration (NASA) signed a partnership in 2014, to collaborate on and launch NISAR (NASA-ISRO SAR) by 2022.
 1. NASA is providing L-band SAR, a high-rate communication subsystem for science data, etc.,
 2. ISRO is providing the S-band radar, and launch services.
- NISAR is a Synthetic Aperture Radar (SAR) that can produce extremely high-resolution images for a joint earth observation satellite mission.
- It will be the first satellite mission to use two radar frequencies (L-band and S-band) to measure changes in Earth's surface less than a centimetre across.
- NISAR will observe Earth's land and ice-covered surfaces with 12-day regularity on ascending and descending passes, sampling Earth on average every 6 days for a baseline 3-year mission.
- Radar penetrates clouds and darkness, enabling NISAR to collect data day and night in any weather.
- It would provide a means of disentangling highly spatial and temporally complex processes like ecosystem disturbances, natural hazards, etc.

Previous Joint Satellite Missions

- **MEGHA-TROPIQUES** (2011) - This Indo-French joint satellite mission that was launched to study the tropical atmosphere and climate related to aspects such as monsoons, cyclones, etc.
- **Satellite for ALTIKA and ARGOS (SARAL)** (2013) - This mission was launched to study the ocean from space using altimetry.

Indo-French Space Collaborations

- Indian Space Research Organisation (ISRO) and French space agency Centre National d'Etudes Spatiales (CNES) are working on their third joint satellite mission.



- **TRISHNA** - ISRO and CNES have completed the feasibility study to realise the earth observation satellite mission with TRISHNA, thermal infrared imager.
- Thermal infraRed Imaging Satellite for High resolution Natural resource Assessment (TRISHNA) will monitor the water cycle to help in properly utilizing it.
- **ARGOS** of CNES will be integrated into ISRO's OCEANSAT-3 satellite.
- ARGOS is the global satellite-based data collection and location system of its kind dedicated to studying and preserving the environment.
- ISRO-CNES Human Space Programme (HSP) Working Group had discussed about medical aspects of human spaceflight and is finalising an arrangement to formalise cooperation in the field of space medicine.
- There are discussions on establishing 'NavIC' (an independent regional navigation satellite system developed by India) reference station in France and CNES 'Scintillation' receivers in India.

Russia's Satellites Launch

- Russian space agency Roscosmos' Soyuz-2.1a carrier rocket with the Fregat upper stage launched the 38 foreign satellites from 18 countries into orbit from Baikonur cosmodrome, Kazakhstan.
- Among them was the Challenge-1, the first satellite made completely in Tunisia, which was created by the Telnet telecommunications group.
- In 2018, a Soyuz rocket carrying a Russian cosmonaut and a NASA astronaut failed mid-flight, forcing the crew to carry out an emergency landing.

Arktika-M Satellite

- Russia launched its space satellite Arktika-M from Kazakhstan by a Soyuz-2.1b carrier rocket with the Fregat booster.
- This is a remote-sensing and emergency communications satellite.
- It was launched to monitor the climate and environment in the Arctic.
- It will have a highly elliptical orbit that passes over northern latitudes allowing it to monitor northern regions for long periods before it loops back down under Earth.
- It will retransmit distress signals from ships, aircraft or people in remote areas as part of its Cospas-Sarsat satellite-based search and rescue programme.
- Russia plans to send a second satellite in 2023. These two will offer round-the-clock, all-weather monitoring of the Arctic Ocean and Earth's surface.

Most Distant Quasar

- The most distant 'radio-loud' quasar was discovered with the help of European Southern Observatory's Very Large Telescope (ESO's VLT).
- [VLT, which is the world's most advanced optical telescope, is located at Paranal Observatory in the Atacama Desert.]
- Named P172+18, the quasar took 13 billion years for the quasar's light to reach earth. It emitted wavelengths with a gravitational redshift of 6.8.
- Only 3 other 'radio-loud' sources with redshift greater than 6 have been discovered so far and the most distant one had a redshift of 6.18.

Quasars

- Quasars (quasi-stellar radio source) are very luminous objects in faraway galaxies that emit jets at radio frequencies.
- They are found **only in galaxies that have super massive blackholes** which power these bright discs.
- Most active galaxies have a supermassive black hole at the centre which sucks in surrounding objects.
- Quasars are formed by the energy emitted by materials spiralling around a blackhole right before being sucked into it. They are of two types,
 1. **Radio-loud quasars** (10% of quasar population) - Have powerful jets that are strong sources of radio-wavelength emission
 2. **Radio-quiet quasars** (about 90% of quasar population) - Lack powerful jets, and have relatively weaker radio emission than the radio-loud population.



- [Redshift of the radio wavelength occurs when light particles (photons) climb out of a gravitational well like a black hole and the light's wavelength gets drawn out.
- Higher the redshift, the farther away is the source.]
- P172+18 quasar appears to the scientists as it was when the universe was just around 780 million years old.
- The glowing disc around a blackhole 300 million times more massive than our Sun, thus, holds clues about the ancient star systems and astronomical bodies.

DEFENCE

Air Independent Propulsion

- Defence Research and Development Organisation's (DRDO's) Naval Materials Research Laboratory (NMRL) is developing Air Independent Propulsion (AIP) System.
- This is crucial for both the conventional diesel electric submarines and nuclear submarines of the Indian Navy.
 1. Nuclear-powered submarines - Key assets for deep sea operations,
 2. Conventional diesel electric submarines - Vital for coastal defence and operations close to the shore.
- With the AIP system on board, these submarines will need to take in oxygen only once a week.
- So, they will be required to surface much less frequently, thus increasing their lethality and stealth multi-fold.
- These fuel cell-based AIPs of NMRL generate hydrogen onboard. This makes it unique from other AIP systems of the world.
- The project aims at fitting the technology on India's Scorpene class submarine INS Kalvari around 2023.

Naval Materials Research Laboratory

- Naval Materials Research Laboratory (NMRL), one of the DRDO laboratories, is the Centre of Excellence for Development of Materials for Naval Applications & Energy Systems.
- It pursues basic research and technology development in several areas - Metallurgy, Polymer, Ceramics, Coating, Corrosion and Electrochemical Protection, Marine Biotechnology, Environmental Sciences.
- Mission
 1. To develop Air Independent Propulsion (AIP) system for Naval Submarine & Fuel Cell technologies.
 2. To provide scientific solutions for all categories of materials & related technologies for Indian Navy.
 3. To undertake research projects on strategic materials for Indian Navy.

Medium-Range Surface to Air Missile

- Kalyani Rafael Advanced Systems (KRAS), a private manufacturer of advanced weapons systems, will deliver 1000 midsection Medium-Range Surface to Air Missile (MRSAM) to Indian Armed Forces.
- MRSAM of KRAS has a range of more than 70 km.
- It has the ability of direct hit, and its accuracy is so perfect that a flying aircraft on one or two or two max plus can be picked up and hit directly rather than at a proximity distance as such.
- This is one of the most proven weapon systems with the Israeli defence forces, Indian forces, and many other countries.

HEALTH

GMO Threshold

- The Food Safety and Standards Authority of India (FSSAI) had ordered that the food crops imported into India would need a 'non-GM-origin-cum-GM-free certificate' issued by a competent authority.
- The FSSAI has set 1% threshold for Genetically Modified Organisms (GMO) in 24 imported food crops.
- The 'Coalition for a GM-Free India' said that this threshold is unacceptably high.



- It wants to limit the threshold for presence of GMO in imported food products to 0.01% as Indian labs can detect as little as 0.01%.
- It also urged the health ministry to extend similar regulations to fish, cotton, seeds and animal feed.
- The task of regulating GMO levels in imported consumables was initially with Genetic Engineering Appraisal Committee (GEAC), Environment ministry.
- Its role in this was diluted with the enactment of the Food Safety and Standards Act, 2006 and FSSAI was asked to take over approvals of imported goods.

Adenovirus-based Vaccine

- Unlike the mRNA vaccine platform used by Pfizer and Moderna, the vector-based vaccine platform technology used by AstraZeneca and Johnson & Johnson have shown lower vaccine efficacy.
- There are studies showing that there is a loss of potency of adenovirus-based vaccine if there are pre-existing antibodies towards the vector.
- Pre-existing antibodies against adenoviruses will stop the adenovirus particles from getting into cells and making the SARS-CoV-2 spike protein they carry the code for.
- The presence of pre-existing antibodies against adenovirus and those developed after first and second dose of the vaccine becomes particularly important when repeat vaccinations are needed.
- Sooner or later, anti-adenoviral antibodies will inevitably form, complicating the situation for subsequent vaccinations.
- While using the same adenovirus subtypes for repeat vaccinations might result in reduced efficacy in the case of vector-based vaccines, the inactivated vaccines do not face this problem.

Malaria Elimination Certificate

- El Salvador has become the first country in Central America to get the malaria-free certificate from the World Health Organization (WHO).
- Malaria elimination certificate is awarded to a country when the chain of indigenous transmission of the disease has been disrupted nationwide for at least **three consecutive years**.
- Countries that eliminated malaria - Algeria, Paraguay, Argentina, Morocco, Armenia, Turkmenistan, Maldives, Kyrgyzstan, Uzbekistan, Sri Lanka.
- Half the global malaria-related deaths (2019) were in 6 African countries - Nigeria, Democratic Republic of the Congo, Tanzania, Burkina Faso, Mozambique and Niger.
- World Malaria Report 2020 - In India, malaria infections fell by 14.4 million (2000-2019), the largest reduction in South-East Asia. In 2019, India accounted for 86% of all malaria deaths in the region.

Diphtheria

- Researchers have found that Diphtheria has started to become resistant to several classes of antibiotics and may become immune to vaccination.
- The disease is once more becoming a major global threat because of the impact of COVID-19 on vaccination schedules in different parts of the world, coupled with a rise in the number of infections.
- Diphtheria is a highly contagious infection, primarily caused by the bacterium *Corynebacterium diphtheria*.
- It is mainly spread by coughs and sneezes or through close contact with someone infected. It can affect the nose, throat and sometimes the skin.
- In most cases, the bacteria cause acute infections, driven by the diphtheria toxin - the key target of the vaccine.
- However, non-toxicogenic *C. diphtheria* can also cause disease, often in the form of systemic infections.



Defeating Meningitis by 2030: A Global Roadmap

- In 2020, the World Health Organization's World Health Assembly endorsed the first-ever resolution on meningitis prevention and control and approved Defeating Meningitis by 2030: A Global Road Map.
- Developed with input from PATH and other global health leaders, the road map outlines goals and provides a framework to achieve them.
- This first global road map on meningitis sets out three visionary goals to:
 1. Eliminate epidemics of acute bacterial meningitis (meningococcus, pneumococcus, Haemophilus influenzae and group B streptococcus);
 2. Reduce cases of and deaths from vaccine-preventable bacterial meningitis;
 3. Reduce disability and improve quality of life after any meningitis.
- To achieve these goals, the road map identifies goals across 5 pillars - Prevention and epidemic control; diagnosis and treatment; disease surveillance; support & care for the affected; advocacy and engagement.

Meningitis

- Meningitis is a serious infection or inflammation of meninges, the three-membrane thin lining that lie over the brain and spinal cord.
- It can be caused by a viral, bacterial, or fungal infection, but bacterial cases are the most dangerous.
- Types of meningitis and their causal agents:
 1. Bacterial meningitis - Streptococcus pneumoniae, Listeria monocytogenes, Haemophilus influenzae, Neisseria meningitides
 2. Viral meningitis - Herpes simplex virus and HIV
 3. Fungal meningitis - Cryptococcal meningitis is a fungal form
- It could trigger headache, brain fever and a person suffering from meningitis may also experience stiffness in neck.
- Survivors frequently suffer deafness, cognitive impairment, and limb amputation due to sepsis.

Candida Auris

- Researchers found Candida Auris on remote beaches of Andaman and Nicobar Islands that can potentially bring next pandemic.
- Candida Auris, a multidrug-resistant fungus, has become a 'superbug' as it is able to resist main anti-fungal treatments.
- C. Auris survives on the skin before entering the body through wounds.
- Once in the bloodstream, it causes severe illness and can lead to sepsis - a condition that kills up to 11 million people a year globally.
- **Spread** - C. auris spreads from one patient to another in hospitals, targeting people with weakened immune systems.
- It spreads through contact with contaminated environmental surfaces or equipment. It is difficult to identify with standard lab methods.
- **Symptoms** may not be noticeable, as patients infected with C. auris are often patients in the hospital with another serious illness or condition.

Efficient Removal of Heavy Metals

- The Indian Institute of Technology (IIT) Mandi has developed a reusable fibrous membrane filter using a biopolymer-based material that helps to separate out the heavy metals from water samples.
- These membranes contain adsorbents (materials that attract and hold the metals) that has large amount of a biopolymer, **Chitosan**, derived from crab shells that are mixed with a synthetic polymer, Nylon.
- Normally, the fibres used to make regular cartridge filter-assemblies are processed by a method called melt

Heavy Metal Pollution

- Heavy metals are Arsenic, lead, mercury, chromium, cadmium, copper, aluminium, etc.
- Heavy metals are released into the water through anthropogenic activities such as manufacturing, electroplating, mining, etc.
- Heavy metals in water could lead to several neurological diseases in humans including Alzheimer's, Parkinson's and multiple sclerosis.

blowing, but the IIT Mandi has used a process called “solution blowing”.

- **Solution blowing** produces fibres that are nanometres in diameter, which increases their surface area tremendously and results in better adsorption of heavy metals.
- Apart from producing nanofibres, solution blowing processes can enable blending of natural polymers with synthetic polymers.
- While normally absorbent fibres bind to the target metal only at their surface, in their nanofibre membranes, the adsorption happens at the sub-surface scale as well. This increases the metal removal efficiency.
- Recovery of the adsorbed metal in a metal-hydroxyl nitrate form is easy.

OTHERS

Aluminium-air Batteries

- State-owned Indian Oil Corporation Ltd. has entered into a joint venture with Israel-based battery technology start-up Phinergy to develop aluminium-air technology based battery systems.
- These batteries utilise oxygen in the air which reacts with an aluminium hydroxide solution to oxidise the aluminium and produce electricity.
- These batteries are said to be a lower cost and more energy-dense alternative to lithium-ion batteries, which are currently in use in India.
- These batteries can be used for electric vehicles and stationary storage, as well as hydrogen storage solutions.
- One of the key downsides of aluminium-air batteries is that they cannot be recharged like lithium-ion batteries. So, large scale use of these battery based vehicles requires several battery swapping stations.
- Aluminium plates in aluminium-air battery is converted into aluminium trihydroxide over time and that aluminium can be reclaimed from aluminium trihydroxide or even traded directly for industrial uses.

Agriculture Voltage Technology

- An Agri-voltaic system with a capacity of 105 KW was developed by ICAR-Central Arid Zone Research Institute, Jodhpur.
- This technology can increase the income of farmers by generation of electricity and growing of cash crops simultaneously on the same land.
- Under the Kisan Urja Suraksha Utthan Mahabhiyan (KUSUM) scheme, there is a provision for installation of agri-voltaic system in farmers’ fields with a capacity of 500 KW-2 MW.
- Moreover, National Solar Energy Federation of India (NSEFI) has documented 13 operational agri-voltaic systems in the country managed by different solar PV functionaries and public Institutes.

Diatom Test

- Maharashtra Anti-Terrorism Squad (ATS) relied on a diatom tests for leads in the alleged murder case of Mansukh Hiran.
- Diatom test helps in diagnosing the death caused by drowning. It tests diatoms in the body being tested.
- Diatoms are photosynthesizing algae found in aquatic environment including fresh and marine waters, soils, etc., (almost anywhere moist).
- If the person is **alive** when he enters the water, the diatoms will enter the lungs when the person inhales water while drowning. These diatoms are then carried to different body parts by blood circulation.
- If a person is **dead** when is thrown in the water, then there is no circulation and there is no transport of diatom cells to various organs.
- **Positive** - Diatom analysis is considered positive only when the number of diatoms recovered from the body is more than a minimal limit.



- Diatoms extracted from the body would be correlated with the samples from the water body where the drowning took place to ascertain the place of drowning.
- **Negative** - The test will be negative if the person died instantly after falling into the water.
- Diatom test is reliable unless and until the deceased person has been drinking water from the same source of water before his death.

Science, Technology and Innovation Policy 2020

- The government finalised a draft 'Fifth Science, Technology and Innovation Policy, 2020'.
- **STI (Science, Technology and Innovation) Development Bank** will direct long-term investments in select strategic areas.
- For large-scale mission-mode programmes, rules of lending will be modified for an easier flow of finance.
- **Strategic Technology Development Fund** is to be set up to home-grow strategic technologies in areas such as nuclear science, space, cyber technology and biotechnology.
- This fund is managed by a Strategic Technology Development Board.
- It will also provide finance to the private sector and higher education institutions for research with specific goals.
- An **engagement portal** exclusively to bring together Indian scientists and technocrats worldwide and to engage with Indian researchers is being planned.
- **Science diplomacy** - Role of S&T in defining foreign policy priorities will be vitalized. Apart from 'S&T for diplomatic benefits', 'diplomacy for S&T development' is to be promoted.

AI Gamechangers' Programme

- National Association of Software and Services Companies (NASSCOM) has launched the 'AI Gamechangers' programme.
- This programme promotes artificial intelligence (AI) led innovation in India, with Microsoft as the 'Innovation Partner'.
- It will be a platform for startups, enterprises, academia, governments, and NGOs to showcase their AI-based products and solutions.
- It will recognise innovators for their successful AI implementation at NASSCOM's Xperience AI Summit.

22. INDEX AND REPORT

Technology and Innovation Report 2020

- This report was released by the United Nations Conference on Trade and Development (UNCTAD).
- [Frontier technologies are those that take advantage of digitalization and connectivity.
- They are Artificial intelligence, Internet of things, Big data, blockchain, fifth-generation mobile telephony, 3D printing, robotics, drones, gene-editing, nanotechnology and solar power.]
- It provides a "Country Readiness Index" that assesses the countries' progress in using frontier technologies, in view of their capacities related to physical investment, technological effort and human capital.
- It scores countries on their readiness based on - ICT deployment, skills, R&D, industry activity and access to finance.
- It spotlights developing countries that perform better on frontier technologies than their per capita GDP would suggest.
- India was the biggest 'over-performer' in frontier technologies.

- Most of the “best-prepared” countries are from Europe, except the Republic of Korea, Singapore and the United States.

Freedom in the World Report 2021

- This report has claimed that India’s status as a “free” country has declined to “partly free”.
- Titled as “Democracy Under Siege”, it was released by Freedom House, a watchdog of human rights.
- It rates people’s access to **political rights** and **civil liberties** in 210 countries and territories.
- These countries are declared as “free”, “partly free” or “not free”.
- **Indicators** - Electoral process, political pluralism and participation, government functioning, Freedom of expression and belief, associational and organisational rights, rule of law, personal autonomy and individual rights.

World Report on Hearing

- This report was released by the World Health Organization (WHO).
- One in every four individuals, or around 2.5 billion people, across the world will experience mild-to-profound hearing loss by 2050.
- It is estimated that at least 700 million people will suffer from disabling hearing loss and require ear and hearing care.
- WHO defines disabling hearing loss as greater than 40 decibels (dB) loss in adults and greater than 30 dB in children.
- **Reasons for the disability** - Exposure to excessive noise, genetic causes, complications at birth, certain infectious diseases, chronic ear infections, the use of particular drugs and ageing.
- Over 5% of the global population have disabling hearing loss. But only 17% of those who required hearing aid, actually used one.

World Energy Transitions Outlook Report

- This report, previewed at the Berlin Energy Transition Dialogue 2021, was released by the International Renewable Energy Agency (IRENA).
- It says that the Covid-19 crisis offers an unexpected opportunity for countries across the world to decouple their economies from fossil fuels and accelerate the shift to renewable energy sources.
- It proposes energy transition solutions for the narrow pathway available to contain the rise of temperature to 1.5°C and halt global warming.
- Emerging energy system must promote a more inclusive and equitable world, with resilience against economic and environmental shocks.
- IRENA estimates that by 2050, 90% of total electricity needs would be supplied by renewables, followed by 6% from natural gas and the remaining from nuclear.
- The agency has identified 30 innovations for the integration of wind and solar PV in power systems.

Report on International Arms Transfers

- This report was released by the Stockholm International Peace Research Institute (SIPRI).
- Largest arms exporters in 2016-20 - US, Russia, France, Germany, China.
- Top importers in 2016-20 - Saudi Arabia, India, Egypt, Australia, China.
- The United States, the world’s largest arms exporter, saw a rise in its global share of exports from 32% to 37% between 2011-15 and 2016-20.
- India’s arms imports fell 33% between 2011-15 and 2016-20, due to its attempt to reduce its dependence on Russian arms and complex procurement processes.

- India's top three arms suppliers during 2016-20 were Russia (49% of India's imports), France (18%) and Israel (13%).
- India accounted for 0.2% of the share of global arms exports during 2016-20, making it the world's 24th largest exporter of major arms.
- Top recipients of India's arms - Myanmar, Sri Lanka, Mauritius.

Commitment to Reducing Inequality Index

- Ministry of Labour and Employment said that the Commitment to Reducing Inequality Index 2020 lacked clarity and didn't take into account provisions of the 4 labour codes that are yet to be implemented.
- The Inequality Index 2020 placed India at rank 151 in terms of workers' rights and 129 overall out of 158 countries.
- It is released by the international charitable organisation 'Oxfam International' in partnership with Development Finance International.
- It monitors what the governments are doing through their policy commitments and actions to reduce inequality and tackle the gap between the rich and poor.
- The index is based upon three basic pillars: Public Services (health, education and social protection), Progressive Tax and Workers Rights.

NDC Synthesis Report

- The UN Framework Convention on Climate Change (UNFCCC) has released the Nationally Determined Contributions (NDC) Synthesis Report.
- In this report, the UNFCCC has updated the NDC till December 31, 2020 for 75 of the 197 Parties to the UNFCCC.
- These Parties account for 30% of the global greenhouse gas (GHG) emissions.
- The UK and the European Union are the only regions among 18 of the world's biggest emitters that have substantially increased their GHG reduction targets.
- Sixteen of the world's biggest emitters have not increased their emission reduction targets substantially or at all.
- UNFCCC called for more ambitious climate action plans by the countries to achieve the Paris Agreement target of containing global temperature rise to 2°C (ideally 1.5°C) by the end of the century.

UN Report on COVID-19 Recovery

- This report is based on the analysis by Oxford's Economic Recovery Project and the United Nations Environment Programme (UNEP).
- It says that only 18% of recovery spending announced by 50 largest economies to tackle the effect of the pandemic in 2020 was green.
- Only \$368 billion of the total \$14.6 trillion in fiscal measures announced was green, which undermines the efforts to build back sustainably.
- A green recovery would be a win for the economy as well as the climate.

World's Forgotten Fishes Report

- According to this report by 16 global conservation organisations, nearly a third of all freshwater fish are threatened with extinction.
- Of the 80 freshwater species declared extinct, as many as 16 freshwater fish species were declared extinct in 2020 alone.
- The population of migratory freshwater fish fell 76% since 1970; that of mega-fish by 94%

- Pressures on global freshwater fish populations - Habitat degradation, poorly planned dams, overfishing, pollution, invasive species, wildlife crime, climate change, releasing wastewater and draining wetlands.
- The WWF has called on all governments to back the implementation of a global Emergency Recovery Plan for freshwater biodiversity.

SDG India Index & Dashboard

- NITI Aayog will launch 3rd edition of “Sustainable Development Goals India Index & Dashboard, 2020-21: Partnerships in the Decade of Action”. It covers 17 Goals, 70 targets, and 115 indicators.
- Launched in 2018, the index has been monitoring progress on the SDGs in the country at the national and sub-national level.
- The index estimation is based on data on indicators for the first 16 goals, with a qualitative assessment for Goal 17.
- The selection of indicators is preceded by a consultative process undertaken in close coordination with MoSPI, Union Ministries and stakeholders from States and Union Territories.
- The index supports the States and UTs in identifying areas which require more attention; and promoting healthy competition among them.
- It has been successful as an advocacy tool to propagate the messages of sustainability, resilience, and partnerships.

Report by Index Monitoring Cell

- The Index Monitoring Cell (IMC) in its report recommended,
 1. Decriminalising of defamation
 2. Consent of the Press Council of India as a prerequisite before filing an FIR against the media or a publication.
- In the World Press Freedom Index, 2020, India had been ranked at 142nd among 180 countries.
- In the Freedom in the World Report, 2021, India’s status had been downgraded from a free country to a “partly free” country.

Index Monitoring Cell

- It was set up by the Ministry of Information and Broadcasting in 2020.
- Chaired by Principal Director General of Press Information Bureau, the 15-member committee has 4 journalists and 10 government employees.
- It aims to improve India’s ranking in the World Press Freedom Index (of Paris-based Reporters Without Borders).
- It aims to evolve an objective yardstick to gauge media freedom.

Ease of Living Index 2020

- The Ministry of Housing and Urban Affairs released the final rankings of Ease of Living Index (EoLI) 2020. The Index categorises the cities into,
 1. Million+ populated cities (Population of more than a million) - **Bengaluru** (Top), Pune, Ahmedabad, Chennai, etc.,
 2. Less than Million populated cities (Population of less than a million) - **Shimla** (Top), Bhubaneshwar, Silvassa, etc.,
 3. All the cities under the Smart Cities Program.
- EoLI is an assessment tool that evaluates the quality of life and the impact of various initiatives for urban development.
- The framework for this assessment was prepared by MoHUA with the Institute for Competitiveness as the knowledge partner.
- It measures the Indians’ well-being in 111 cities based on Quality of Life, Economic-ability, and Sustainability - 49 indicators under 13 categories.
- It incorporates the residents' view on the city administration’s services through a Citizen Perception Survey (CPS) - 30% weightage.

- It seeks to accelerate India's urban development outcomes, including the achievement of the Sustainable Development Goals.

Municipal Performance Index 2020

- The Ministry of Housing and Urban Affairs released the final rankings of the Municipal Performance Index (MPI) 2020.
- The framework for this assessment was prepared by MoHUA with the Institute for Competitiveness as the knowledge partner.
- The MPI has classified municipalities based on their population as-
 1. Million+ category (Municipalities having over a million population) - **Indore** (Top), Surat, Bhopal.
 2. Less than Million Population category (Municipalities with a population of less than a million) - New Delhi Municipal Council (**NDMC**) (Top), Tirupati and Gandhinagar.
- It examined the sectoral performance of 111 municipalities (with Delhi assessed separately, and the three Municipal Corporations) across 5 verticals which comprise of 20 sectors and 100 indicators in totality.
- Five verticals - Services, Finance, Policy, Technology and Governance.
- The MPI is an effort to assess and analyse the performance of Indian municipalities based on their defined set of functions.
- The EoLI measures an outcome of the indicator, while the MPI focuses on the factors that produce those outcomes.

Food Waste Index Report 2021

- This United Nations Environment Programme (UNEP) report aims to advance progress on the Sustainable Development Goal 12.3 (SGD 12.3).
- [SDG 12.3 aims at halving per-capita global food waste at the retail and consumer levels and reducing food losses along production and supply chains.]
- This report presents the most comprehensive food waste data collection, analysis and modelling to date, generating a new estimate of global food waste.
- It publishes a methodology for countries to measure food waste, at household, food service and retail level, in order to track national progress towards 2030 and to report on SDG 12.3.

Three-level methodology for measuring Food Waste Index



- **Findings** - The 2021 index has revealed that 17% of all food available at consumer levels was wasted in 2019.
- The food waste amounted to 931 million tonnes of food sold. Around 690 million people had to go hungry.
- It was prepared by using data from 54 countries and then extrapolated to the remaining countries.



- On an average, 74 kgs of food was wasted per capita/year at household level. India wastes in 50 kg/capita/year.
- **Recommendations** - Countries can raise climate ambition by including food systems in their NDCs.
- Regional Food Waste Working Groups will provide capacity building and training to participating Member States in measuring food waste, developing a national baseline, etc., for food waste prevention.
- The UN Food Systems Summit will provide an opportunity to launch bold new actions to tackle food waste globally.

Food Loss Index

- The Food Waste Index report is in contrast to the Food Loss Index of the United Nations Food and Agriculture Organization (FAO).
- The Food Waste Index covers the later stages of food's journey - food waste - occurring at household, food service and retail level.
- Food loss and waste causes about \$940 billion/year in economic losses.
- As of now, none of the Nationally Determined Contributions (NDCs) to the Paris Agreement mention food waste and only 11 mention food loss.

PRELIMS PRACTICE QUESTIONS

1) Consider the following statements with respect to Sugamya Bharat App

1. The app acts as a way of sensitising and enhancing accessibility in the 3 pillars of the Accessible India Campaign.
2. The app has been developed by the Department of Empowerment of Persons with Disabilities (DEPwD) under Ministry of Social Justice and Empowerment.

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

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

2) Consider the following statements with respect to Waste to Wealth Mission

1. It is one of the 9 national missions of the Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC).
2. Swachhta Saarthi Fellowship, which was launched recently, comes under the Waste to Wealth Mission.

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

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

3) The term taper tantrum, recently seen in news, is related to?

- a) The tapering of ice bergs in Artic Circle due to increasing sea surface temperature
- b) The capital outflows in emerging economies caused by tapering of US Fed's bond-buying programme
- c) The tapering of Forex reserve of a country due to increase in oil prices
- d) The partial solar eclipse caused when the moon is near its apogee



4) Consider the following statements with respect to Himalayan Serow

1. They are generally found at an altitude with an average elevation of 5000 metres above sea level.
2. It is categorized as 'vulnerable' under IUCN Red List and listed under Schedule I of The Wildlife Protection Act, 1972.

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

5) With respect to Javadhu Hills, consider the following statements:

1. It is an extension of the Eastern Ghats spread across parts of the state of Tamil Nadu in southeastern India.
2. Malayali tribal people constitutes the majority of the inhabitants of the Javadhu hills.
3. Vainu Bappu Observatory, India's astronomical observatory owned and operated by the Indian Institute of Astrophysics, is located in the Javadhu Hills.

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

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

6) Consider the following statements with respect to CSIR Floriculture Mission

1. Under the mission, efforts are being made to brought in agro-technologies and new varieties available with the CSIR institutions to farmers and help them in multiplying their income.
2. The mission is being implemented in collaboration with ICAR, KVIC, TRIFED and others.

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

7) Consider the following statements with respect to Ease of Living Index, 2020

1. The index aims to measure the well-being of Indian citizens in 111 cities, across the pillars of Quality of Life, Economic-ability, and Sustainability.
2. Bengaluru tops the Million+ population category and Shimla tops the Less than Million category.
3. The report was prepared and launched by NITI Aayog.

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



8) Which of the following are criteria considered for providing Least Developed Country status to a nation?

1. Per capita Income
2. Gross Domestic Product Values
3. Consumer Price Index
4. Human Assets Index
5. Economic Vulnerability Index

Select the correct answer using the codes given below:

- a) 1 & 3 only
- b) 1, 2 & 3 only
- c) 2, 3, & 5 only
- d) 1, 4 & 5 only

9) With respect to Solid Fuel Ducted Ramjet (SFDR) Technology, consider the following statements:

1. It is a missile propulsion system being developed by the Defence Research and Development Organisation (DRDO).
2. This technology will provide a technological advantage which will enable DRDO to develop future Indian long range air-to-air missiles.

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

10) Consider the following statements with respect to Red Rice

1. The red rice, locally known as Bao-dhaan, is rich in Iron content.
2. It is grown in the Brahmaputra valley of Assam, without the use of any chemical fertilizer.

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

11) Which of the following statements are correct with respect to Food Waste Index Report 2021

1. It measures total food waste rather than loss or waste associated with specific commodities.
2. It is released by UN-Food and Agriculture Organization.

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



12) With respect to Sattras, consider the following statements:

1. They are monastic institutions created by Neo-Shaivite reformer Basavanna.
2. Each Sattrra has a naamghar (worship hall) as its nucleus and is headed by an influential Sattradhikar.
3. Sattras received a lot of donations in the form of land or money from the kings during the Ahom reign.

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

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

13) Which of the following statements are correct with respect to Insurance Ombudsman

1. An Ombudsman shall be selected from amongst persons having experience of the insurance industry, civil service, administrative service or judicial service.
2. Term of office of Insurance ombudsman is 5 years and not eligible for reappointment.

Select the correct answer using the codes given below:

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

14) Which of the following statements are correct with respect to National Cyber Security Strategy 2020

1. It is formulated by NITI Aayog and Ministry of Electronics and Information Technology
2. It calls for an index of cyber preparedness, and attendant monitoring of performance.

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

15) The term ShadowPad recently in news refers to?

- a) Japan's rover to moon
- b) USA's security software
- c) Organization on cyber security
- d) Trojan Malware

16) Consider the following statements with respect to Fuel cell based Air Independent Propulsion (AIP) System

1. The system enables conventional diesel-electric submarines to stay underwater for vastly longer periods than nuclear submarines.
2. The technology creates energy by combining hydrogen and oxygen, with only water created as a by-product.
3. The system is being designed and developed by Indian Navy.



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

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

17) With respect to River Tawi, consider the following statements:

- 1. The river originates in Kailash Kund glacier in Jammu.
- 2. It is a major left bank tributary of the river Chenab.

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

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

18) Which of the following statements are correct with respect to Quasar

- 1. Quasars are very luminous objects in faraway galaxies that emit jets at radio frequencies.
- 2. They are only found in galaxies that have supermassive black holes which power these bright discs.

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

19) Consider the following statements with respect to Pradhan Mantri Swasthya Suraksha Nidhi (PMSSN)

- 1. It is a single non-lapsable reserve fund for Health in the Public Account.
- 2. The proceeds of share of health in the Health and Education cess levied under Finance Act, 2007 will be credited into the fund.
- 3. The fund will be administered and maintained by the Ministry of Health & Family Welfare.

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

20) Development and Welfare Board for Denotified, Nomadic and Semi-Nomadic Communities (DWBDNCs) works under the aegis of?

- a) Ministry of Home Affairs
- b) Ministry of Tribal Affairs
- c) Ministry of Rural Development
- d) Ministry of Social Justice and Empowerment



21) Consider the following statements with respect to Global Breast Cancer Initiative

1. It aims to reduce global breast mortality by 2.5 per cent by 2040.
2. It was launched by the World Health Organization (WHO) in collaboration with the International Atomic Energy Agency (IAEA).

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

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

22) Shramik Kalyan Portal is associated with which of the following?

- a) Indian Railways
- b) Ministry of Mines
- c) Ministry of Labour and Employment
- d) Indian Council of Agricultural Research

23) Consider the following statements with respect to SERB – PRISM

1. It is the external public portal developed as part of the Management Information System (MIS) of Science and Engineering Research Board (SERB).
2. The portal will provide information regarding projects sanctioned by Science and Engineering Board (SERB) from 2011 onwards.

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

24) Which of the following community celebrates Herath Festival?

- a) Kodava Tribes
- b) Kashmiri Pundits
- c) Zoroastrians
- d) Munda Tribes

25) With respect to the Places of Worship (Special Provisions) Act, 1991, which of the following statements is incorrect?

- a) The Act prohibits conversion of any place of worship
- b) The Act provides for the maintenance of the religious character of any place of worship as it existed on the day of commencement of this Act
- c) Nothing contained in this Act shall apply to the Ram Janma Bhumi-Babri Masjid situated in Ayodhya
- d) The Act also exempted any place of worship that is covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958



26) With respect to Superior Mirage, consider the following statements:

1. It is an optical illusion caused by a meteorological phenomenon called temperature inversion.
2. This phenomenon is common in deserts at summer noon, due to which an inverted image of a distant tree is seen formed in hot sand below it.

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

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

27) Which of the following statements are incorrect with respect to Ayya Vaikunda Swamikal

1. He lived in the Princely Kingdom of Travancore in the early decades of the 19th Century Kerala.
2. He was a close associate of Dayananda Saraswathi, the founder of Arya Samaj.

Select the correct answer using the codes given below:

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

28) Which of the following statements are correct with respect to Additional Tier-1 (AT1) Bonds

1. It is a government secured bond with short term tenure with a fixed maturity date.
2. These bonds are typically used by banks to bolster their core or tier-1 capital.

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

29) Which of the following statements are correct with respect to Project RE-HAB

1. It aims to thwart elephant attacks in human habitations using honey bees.
2. It is lunched by Ministry of Ministry of Environment, Forest and Climate Change.

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

30) With respect to World Air Quality Report, 2020, which was launched recently, consider the following statements:

1. India, on the whole, had improved its average annual PM_{2.5} (particulate matter) levels in 2020 than in 2019.
2. Delhi is the most polluted capital city in the world.



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) With respect to Project SAMVAD, consider the following statements:

- 1. It is the world's largest survey that aims to provide base for designing national and state level programmes and policies for ageing population in India.
- 2. The project was led by National Institute of Mental Health and Neurosciences (NIMHANS) in collaboration with Ministry of Panchayati Raj.
- 3. The project will be funded by the Ministry of Women and Child Development (MoWCD).

Which of the statements given above are correct?

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

32) With respect to the Government of National Capital Territory of Delhi (Amendment) Bill, 2021, consider the following statements:

- 1. The Bill provides that the term government referred to in any law made by the Legislative Assembly will imply Lieutenant Governor (LG).
- 2. The Bill prohibits the Legislative Assembly from making any rule to enable itself to consider the matters of day-to-day administration of the NCT of Delhi.
- 3. The bill states that the Lieutenant Governor's opinion must be obtained on every matters, before taking any executive action on the decisions of the Minister/ Council of Ministers.

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

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

33) Consider the following statements with respect to TraceBioMe Project

- 1. It is one of the flagship projects of the ESSO-Indian National Centre for Ocean Information Services (ESSO-INCOIS).
- 2. Under the project, a 90-day scientific cruise mission was launched recently for mapping the genetic diversity of organisms and the effect of micronutrients and trace metals on them in the Indian Ocean.

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

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



34) Consider the following statements with respect to The Medical Termination of Pregnancy (Amendment) Bill, 2020

1. The Bill seeks to amend the Medical Termination of Pregnancy Act, 197
2. According to the bill, abortion requires the opinion of one doctor if it is done within 12 weeks of conception, and two doctors if it is done between 12 and 20 weeks.
3. Under the bill, Pregnancy cannot be terminated at any circumstances after 24 weeks.

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

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

35) Bhaona, a traditional form of entertainment belongs to which of the following Indian states?

- a) Karnataka
- b) Assam
- c) West Bengal
- d) Gujarat

36) World Energy Transitions Outlook Report was released by?

- a) International Energy Agency
- b) International Atomic Energy Agency
- c) International Renewable Energy Agency
- d) None of the above

37) Consider the following statements with respect to Stop TB Partnership

1. It is a unique international body with the power to align actors all over the world in the fight against TB.
2. It was established in the year 2000 to eliminate Tuberculosis as a public health problem by 2030.
3. Union Minister for Health and Family Welfare was recently appointed as Chairman of Stop TB Partnership Board.

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

38) State of the World's Indigenous Peoples Report was released recently by?

- a) UN Development Programme
- b) Food and Agricultural Organization
- c) UN Department of Economic and Social Affairs
- d) International Work Group for Indigenous Affairs



39) Consider the following statements with respect to Allotment of Political Symbols

1. Election Commission can allot reserved symbols only to recognised political party.
2. When a recognised political party splits, Supreme Court decides on assigning the symbol.

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

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

40) With respect to Vehicle Scrapping Policy which was launched recently, consider the following statements:

1. The policy proposes that the commercial vehicles must be de-registered and scrapped after 15 years from the date of registration.
2. The policy proposes that all vehicles of the Central Government and State Governments will be de-registered after 15 years in case of failure to get the fitness certificate.
3. The owners who scrap old vehicles were incentivized by waiving of registration fees for purchase of a new vehicle.

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

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

41) With respect to Great Red Spot, sometimes seen in the news recently, consider the following statements:

1. It is a persistent high-pressure region in the atmosphere of Mars.
2. It produces anticyclonic storm that is the largest in the Solar System.

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

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

42) Consider the following statements with respect to Gram Ujala Programme

1. It is a customized program launched by the Ministry of Power for rural India, based uniquely and innovatively on carbon finance.
2. Under the programme, LED bulbs will be given at an affordable cost to rural consumers against submission of working Incandescent bulbs.
3. The Programme will be financed entirely through carbon credits and will be the first such programme in India.

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

- a) 3 only
- b) 2 and 3 only
- c) 1, 2 and 3



d) None of the above

43) Consider the following statements with respect to Aluminium Air Batteries

1. It is lower in cost and has more energy-density than Lithium-ion batteries.
2. The special feature is that it can be recharged very fast and can retain the power for longer than any other batteries.

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

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

44) Consider the following statements with respect to Near-Earth Objects (NEOs)

1. They are asteroids and comets which passes close to the Earth's orbit with perihelion distance less than 3 astronomical unit.
2. Comets are formed in the cold outer planetary system whereas rocky asteroids are formed in the warmer inner solar system between Mars and Jupiter.

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

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

45) PRANIT is an e-Tendering Portal launched recently by?

- a) Ministry of Coal
- b) Ministry of Mines
- c) Ministry of Power
- d) Ministry of Steel

46) Coalition for Disaster Resilient Infrastructure was launched during which of the following event?

- a) COP 21 Paris
- b) COP 25 Madrid
- c) India-Africa Summit 2015
- d) UN Climate Action Summit

47) Tsugaru Strait is a strait connecting which of the following?

- a) East China Sea and Yellow Sea
- b) Sea of Japan and Pacific Ocean
- c) Sea of Okhotsk and Bering Sea
- d) South China Sea and Philippine Sea



48) Which of the following is/are the salient features of Saguna Rice Technique, often seen in the news, recently?

1. Zero till conservation agriculture
2. Ample oxygen supply to root zone
3. Prevent fertility loss during puddling
4. Not dependent on erratic behavior of rain

Select the correct answer using the codes given below:

- a) 3 only
- b) 3 and 4 only
- c) 1, 2 and 3 only
- d) 1, 2, 3 and 4

49) Which of the following statements regarding Heart of Asia-Istanbul Process (HoA-IP), is incorrect?

- a) It is a regional initiative of Afghanistan and the Republic of Turkey launched in 2011 at Istanbul
- b) It provides a platform for sincere and result-oriented regional cooperation by placing Afghanistan at its center
- c) India co-hosted the 9th Heart of Asia Ministerial Conference at Amritsar, Punjab in 2021
- d) HoA-IP comprises a Permanent chair and a Co-chair and Afghanistan will be the permanent chair

50) Arrange the following lakes in Suez Canal from North to South?

1. Lake Timsah
2. Lake Manzala
3. Little Bitter Lake
4. Great Bitter Lake

Select the correct answer using the codes given below:

- a) 4-3-2-1
- b) 2-1-4-3
- c) 1-2-3-4
- d) 3-4-1-2

Answers

1. c

- Union Minister for Social justice and Empowerment Shri Thaawarchand Gehlot will virtually launch "Sugamya Bharat App" and a handbook entitled "Access – The Photo Digest" through video conference.
- The App and the handbook have been developed by the **Department of Empowerment of Persons with Disabilities (DEPwD)** under Ministry of Social Justice and Empowerment.

Sugamya Bharat APP

- It is a Crowdsourcing Mobile Application.
- It is a means for **sensitising and enhancing accessibility in the 3 pillars of the Accessible India Campaign** i.e.
 1. Built environment
 2. Transportation sector



3. ICT ecosystem in India

- **Registered users can raise issues related to accessibility being faced.**
- The App also has provision of easy photo uploads with geotagging option of the premise where accessibility intervention is required.
- The App has provision for providing notifications to the users at the time of registration, regular status updates as well as at the time of resolution and closure of the complaint.

2. c

- The Office of the Principal Scientific Adviser to the Government of India under its “Waste to Wealth” Mission has recently launched the “Swachhta Saarthi Fellowship”.
- The fellowship aims to recognize students, community workers/self-help groups, and municipal/sanitary workers who are engaged in tackling the enormous challenge of waste management, scientifically and sustainably.

Waste to Wealth Mission

- It is one of the 9 national missions of the Prime Minister’s Science, Technology, and Innovation Advisory Council (PM-STIAC).
- The mission aims to identify, develop and deploy technologies to treat waste to generate energy, recycle materials, and extract resources of value.
- The mission will also work to identify and support the development of new technologies that promise to create a clean and green environment.
- The mission will assist and augment the Swachh Bharat and Smart Cities projects by leveraging science, technology, and innovation to create circular economic models that are financially viable for waste management to streamline waste handling in the country.

3. b

- In May 2013, the US Fed’s announcement that it would taper its massive bond-buying programme that had been on since the global financial crisis led to a sudden sell-off in global stocks and bonds.
- This triggered capital outflows and currency depreciation in many emerging market economies that received large capital inflows. This episode earned the nickname taper tantrum.

4. a

Himalayan Serow

- The Himalayan Serow (*Capricornis sumatraensis thar*) resembles a cross between a goat, a donkey, a cow, and a pig.
- It is a medium-sized mammal with a large head, thick neck, short limbs, long, mule-like ears, and a coat of dark hair.
- It is restricted to the Himalayan region and can be regarded as a subspecies of the mainland serow.
- The Serows are generally not found at an altitude with an average elevation of 4,270 metres above sea level.
- Recently, the Himalayan Serow was spotted for the first time in Assam.
- Its distribution ranges are in the following regions
 1. The dark form in the southern slopes of Himalayas from Jammu & Kashmir in west to Arunachal Pradesh in the east.
 2. The enigmatic red form in the hills of Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Tripura and Nagaland.

Wild life protection act of 1972

- Wild life protection act of 1972 has six schedules which give varying degrees of protection.
- Schedule I and part II of Schedule II provide absolute protection for the species listed, offences under these are prescribed the highest penalties.

5. d

- In Javadhu Hills, the Van Dhan tribal start-ups programme, a component of the 'Mechanism for Marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP) & Development of Value Chain for MFP' Scheme, has emerged as a major source of employment for the local tribals.

Javadhu Hills

- The hills also called as Jawadhi, Jawadhu, Javadi Hills, are an extension of the Eastern Ghats spread across parts of Vellore and Tiruvannamalai districts in the northern part of the state of Tamil Nadu in southeastern India.
- They are bisected into eastern and western sections by the Cheyyar and Agaram rivers, tributaries of the Palar River.
- They consist of bluish gray granites, with peaks averaging 3,600–3,800 feet (1,100–1,150 m).
- The hills are sparsely populated; the majority of the inhabitants are Malayali tribes people, though other castes are also present.
- The **Malayali tribal people constitute 92.60%** of the total population in this block and their mainstay is through the non-timber forest produce and a variety of trees grown on this patta land such as tamarind, jackfruit, coconut, lemon and plantain and gooseberry.
- Vainu Bappu Observatory, India's astronomical observatory owned and operated by the Indian Institute of Astrophysics, is located at Kavalur in the Javadi Hills.

6. c

CSIR Floriculture Mission

- **Aim:** Through Floriculture Mission of CSIR, agro-technologies, new varieties and value addition technologies available with the CSIR institutions, efforts are being made to take these to farmers and entrepreneurs, and help them in multiplying their income.
- Market linkage and trade issues will be solved with partnership of APEDA, state horticulture departments and TRIFED.
- The convergence of Floriculture with Apiculture as envisaged in the mission will yield even greater benefits.
- The Mission is being implemented in collaboration with ICAR, KVIC, APEDA, TRIFED, Fragrance and Flavour Development Centre (FFDC), Kannauj, Ministry of Commerce, Ministry of MSME and Universities.

7. a

- Ministry of Housing and Urban Affairs (MoHUA) has recently announced the release of the final rankings of Ease of Living Index (EoLI) 2020 and the Municipal Performance Index (MPI) 2020.
- The rankings under Ease of Living Index 2020 were announced for cities with a population of more than a million, and cities with less than a million people.
- Bengaluru emerged as the top performer in the Million+ category, followed by Pune, Ahmedabad, Chennai, Surat, Navi Mumbai, Coimbatore, Vadodara, Indore, and Greater Mumbai.
- In the Less than Million category, Shimla was ranked the highest in ease of living, followed by Bhubaneswar, Silvassa, Kakinada, Salem, Vellore, Gandhinagar, Gurugram, Davangere, and Tiruchirappalli.

Ease of Living Index (EoLI)

- The EoLI report aims to measure the well-being of Indian citizens in 111 cities, across the pillars of Quality of Life, Economic-ability, and Sustainability, with 49 indicators under 13 categories.
- The EoLI 2020 strengthens its scope by consolidating the framework with the addition of a Citizen Perception Survey in the index, holding a weightage of 30%.
- It, therefore, examines the outcomes that lead to existing living conditions through pillars of Quality of Life, Economic Ability, Sustainability, spanning across 13 categories of -Education, Health, Housing and Shelter, WASH and SWM, Mobility, Safety and Security, Recreation, Level of Economic Development, Economic Opportunities, Environment, Green Spaces, and Buildings, Energy Consumption, and City Resilience, that account for 70% of the overall outcome.
- The Citizen Perception Survey (CPS) was undertaken to help validate citizens' experience of their city in terms of service delivery.

- Bhubaneswar had the highest CPS score, followed by Silvassa, Davangere, Kakinada, Bilaspur and Bhagalpur.

Municipal Performance Index (MPI), 2020

- The index examined the sectoral performance of 111 municipalities (with Delhi being assessed separately for NDMC, and the three Municipal Corporations) across five verticals which comprise of 20 sectors and 100 indicators in all totality.
- The five verticals under MPI are Services, Finance, Policy, Technology and Governance.
- In the Million+ category, Indore has emerged as the highest ranked municipality, followed by Surat and Bhopal. In the Less than Million category, New Delhi Municipal Council has emerged as the leader, followed by Tirupati and Gandhinagar.

8. d

Least Developed Country status

- UN Committee for Development Policy (CDP) decides on the Least Developed Country (LDC) status of a country based on three criteria,
 1. Per capita income,
 2. Human Assets Index
 3. Economic Vulnerability Index
- A country must achieve two of the three criteria at two consecutive triennial reviews to be considered for graduation.
- Recently CDP has recommended graduation of Bangladesh from the category of LDC to the category of Developing Country.
- Bangladesh has met for the second time all the three eligibility criteria for graduating from the LDC category to the developing nations category.
- This proposal will be sent to the UN Economic and Social Council (ECOSOC) for endorsement, late to the UN General Assembly (UNGA).
- Usually countries are given 3 years for transition but this year due to the pandemic, Bangladesh has been given 5 years i.e. up to 2026.

9. d

- Defence Research and Development Organisation (DRDO) successfully carried out a flight demonstration based on Solid Fuel Ducted Ramjet (SFDR) technology from Integrated Test Range Chandipur off the coast of Odisha recently.
- During the test, many new technologies were proven, including Solid Fuel based Ducted Ramjet technology.

Solid Fuel based Ducted Ramjet (SFDR) Technology

- The successful demonstration of Solid Fuel based Ducted Ramjet technology has provided DRDO with a technological advantage which will enable it to develop future Indian long range air-to-air missiles.
- At present, such technology is available only with a handful of countries in the world.

10. c

- In a major boost to India's rice exports potential, the first consignment of 'red rice' was flagged off recently to the USA.

Red Rice

- The rice is grown in Brahmaputra valley of Assam, without the use of any chemical fertilizer.
- The rice variety, which is rich in Iron content, is referred as 'Bao-dhaan', which is an integral part of the Assamese food.

11. a

Food Waste Index Report 2021



- Recently, the United Nations Environment Programme (UNEP) released the Food Waste Index Report 2021.
- It presents the most comprehensive food waste data collection, analysis and modelling to date, generating a new estimate of global food waste.
- It also publishes a methodology for countries to measure food waste, at household, food service and retail level, to track national progress towards 2030.
- In contrast to the Food Loss Index, the Food Waste Index measures total food waste (rather than loss or waste associated with specific commodities).
- This report estimates that around 931 million tonnes of food waste was generated in 2019.
- 61% of which came from households, 26% from food service and 13% from retail.

Food Loss Index

- The Food Loss Index (FLI) focuses on food losses that occur from production up to (and not including) the retail level.
- It measures the changes in percentage losses for a basket of 10 main commodities by country in comparison with a base period.
- The FLI contributes to measure progress towards SDG Target 12.3.

12. c

Sattras

- They are monastic institutions created as part of the 16th century Neo-Vaishnavite reformist movement started by Vaishnavite saint-reformer Srimanta Sankaradeva (1449-1596).
- As the saint travelled across Assam, spreading his teachings and propagating an egalitarian society, these Sattras/Thans were established as centres of religious, social and cultural reforms in the 16th century.
- Nowadays, Sattras are spread across the state, promulgating Sankaradeva's unique "worship through art" approach with music (borgeet), dance (xattriya) and theatre (bhauna).
- Each Sattra has a naamghar (worship hall) as its nucleus and is headed by an influential "Sattradhikar".
- Monks, known as bhakats, are inducted into Sattras at a young age.
- They may or may not be celibate, depending on the kind of Sattra they are inducted into.
- These institutions are of paramount importance and lie at the heart of Assamese culture.
- During the Ahom reign, the Sattras received a lot of donations in the form of land or money from the kings.

Sankardeva

- He propagated a form of Bhakti called eka-sharana-naam-dhrama, and espoused a society based on equality and fraternity, free from caste differences, orthodox Brahmanical rituals and sacrifices.
- His teaching focused on prayer and chanting (naam) instead of idol worship.
- His dharma was based on the four components of deva (god), naam (prayers), bhakats (devotees), and guru (teacher).

13. a

Insurance Ombudsman

- Its powers, functions, terms of office etc. were laid in Insurance Ombudsman Rules, 2017.
- An Ombudsman shall be selected by a Selection Committee comprising of:
 - Chairperson of the Insurance Regulatory and Development Authority (IRDA) who is also the Chairman of the Selection Committee.
 - One representative each of the Life Insurance Council and the General Insurance Council from the Executive Council of Insurers.
 - A representative of the Government of India not below the rank of a Joint Secretary.



- After amendment to Insurance Ombudsman Rules, 2017, the selection committee will now include an individual with a track record of promoting consumer rights or advancing the cause of consumer protection in the insurance sector.
- Term of Office is three years and it is eligible for reappointment provided that no person shall hold office as an Ombudsman after he has attained the age of seventy years.
- Recently, the Union government amended the Insurance Ombudsman Rules, 2017, bringing insurance brokers within the ambit of the Insurance Ombudsman and also allowed policy holders to file online complaints.

14. b

National Cyber Security Strategy 2020

- A National Cyber Security Strategy 2020 is being formulated by the Office of National Cyber Security Coordinator at the National Security Council Secretariat.

Highlights

- There will be table-top cyber crisis management exercises regularly to reinforce the idea that cyber-attacks can take place regularly.
- A separate budget for cybersecurity is suggested, as also to synergise the role and functions of various agencies with the requisite domain knowledge.

National Security Council (NSC)

- National Security Council (NSC) is an executive government agency tasked with advising the Prime Minister's Office on matters of national security and strategic interest.
- It was established by the former prime minister of India Atal Bihari Vajpayee on 19 November 1998.
- It is a three-tiered organization that oversees political, economic, energy and security issues of strategic concern.

15. d

ShadowPad

- It is a backdoor Trojan malware, it opens a secret path from its target system to its command-and-control servers.
- Information can be extracted or more malicious code delivered via backdoor Trojan malware.
- It is built to target supply-chain infrastructure in sectors like transportation, telecommunication, energy and more.
- It was first identified in 2017, when it was found hidden in a legitimate software produced by a company named NetSarang.
- The security analysis firm FireEye links ShadowPad to a group known as 'APT41', which is allegedly developed by Chinese-speaking actors.

16. b

- The Defence Research and Development Organisation (DRDO) has reached another milestone with the completion of its final Air Independent Propulsion (AIP) test recently.
- In developing the AIP technology, India joins an elite list of countries that currently only includes the United States, France, China, the United Kingdom and Russia.

Diesel and Electric Submarines

- Submarines run on diesel and electricity require a network of batteries charged by a diesel generator.
- In order for them to charge, the submarine needs to snorkel i.e. travel just under the surface of the water so that the diesel generator can be turned on and exhaust generated released via a pipe that breaches the surface.
- During this period, the submarine becomes extremely vulnerable to enemy radars and hostile submarine assets.



- In fact, some submarines are even equipped with 'diesel sniffers' which can detect the emissions released by snorkelling submarines.
- Fuel Cell based Air Independent Propulsion (AIP)
- The technology create energy by combining hydrogen and oxygen, with only water created as a by-product.
- Since these cells are extremely efficient and have minimal moving parts, they can also operate without increasing the acoustic signature of the submarine.
- Hydrogen fuel cells create no exhaust fumes which also eliminates the need to have special exhaust scrubbing and disposable machine parts.
- Fuel-cell based AIPs enable submarines to stay underwater for vastly longer periods of time than conventional diesel-electric submarines increasing their range and turning them into a far more potent and lethal adversary.
- A submarine enabled with AIP can remain submerged for weeks sometimes without surfacing.
- Despite the advantage it offers them against conventional diesel-electric submarines, they still do not have the same endurance as nuclear submarines that do not need to surface at all.

17. c

- River Tawi is a source of drinking water for thousands in Jammu and over the years, it has turned into a garbage dump, with heaps of toxic waste that pollutes its water and ecosystem dumped on its shores.
- It remains littered with plastics, medicines, biomedical waste and industrial effluent.

River Tawi

- Tawi originates in Kailash Kund glacier located in Jammu's Baderwah.
- It flows through Doda and Udhampur districts of Jammu.
- The Tawi is a major left bank tributary of the river Chenab.
- It is a source of drinking water for more than 700,000 people in the city of Jammu.

18. c

Quasar

- The word quasar is short for "quasi-stellar radio source", most quasars are faint radio emitters.
- In addition to radio waves and visible light, quasars also emit ultraviolet rays, infrared waves, X-rays, and gamma-rays.
- Most quasars are larger than our solar system, A quasar is approximately 1 kiloparsec in width.
- Quasars are formed by the energy emitted by materials swirling around a blackhole right before being sucked into it.
- They are further categorised into the "radio-loud" and the "radio-quiet" classes.
- Recently, an international team of astronomers has discovered the most distant 'Radio-Loud' Quasar named P172+18 with the help of European Southern Observatory's Very Large Telescope (ESO's VLT).

19. d

- The Union Cabinet, chaired by the Prime Minister, Shri Narendra Modi, has recently approved the Pradhan Mantri Swasthya Suraksha Nidhi (PMSSN).

Pradhan Mantri Swasthya Suraksha Nidhi (PMSSN)

- It is a single non-lapsable reserve fund for share of Health from the proceeds of Health and Education Cess levied under Section 136-b of Finance Act, 2007.

Salient features of the PMSSN

- A non-lapsable reserve fund for Health in the Public Account.
- Proceeds of share of health in the Health and Education Cess will be credited into PMSSN.



- Accruals into the PMSSN will be utilized for the flagship schemes of the Ministry of Health & Family Welfare namely,
 1. Ayushman Bharat - Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)
 2. Ayushman Bharat - Health and Wellness Centres (AB-HWCs)
 3. National Health Mission
 4. Pradhan Mantri Swasthya Suraksha Yojana (PMSSY)
 5. Emergency & disaster preparedness and responses during health emergencies
 6. Any future programme/scheme that targets to achieve progress towards SDGs and the targets set out in the National Health Policy (NHP) 2017.
- Administration and maintenance of the PMSSN is entrusted to Ministry of Health & Family Welfare.
- In any financial year, the expenditure on such schemes of the MoHFW would be initially incurred from the PMSSN and thereafter, from Gross Budgetary Support (GBS).

20. d

- Ministry/Department of Social Justice and Empowerment has constituted the Development and Welfare Board for Denotified, Nomadic and Semi-Nomadic Communities (DWBDNCs) in 2019.
- It aims for Development and Welfare of Denotified, Nomadic and Semi-Nomadic Communities for a period of three years extendable up to 5 years.

The responsibilities of the DWBDNC are:

1. To formulate and implement Welfare and Development programmes, as required, for Denotified, Nomadic and Semi-Nomadic Communities.
2. To identify the locations/areas where these communities are densely populated.
3. To assess and identify gaps in accessing existing programmes and entitlements and to collaborate with Ministries/implementing agencies to ensure that ongoing programmes meet the special requirements of Denotified, Nomadic and Semi-Nomadic Communities.
4. To monitor and evaluate the progress of the schemes of Government of India and the States/UTs with reference to Denotified, Nomadic and Semi-Nomadic Communities.

21. c

- To mark International Women's Day, on 8 March, the World Health Organization (WHO), in collaboration with the International Agency for Research on Cancer (IARC) and the International Atomic Energy Agency (IAEA), is launching the Global Breast Cancer Initiative.

Global Breast Cancer Initiative

- It aims to reduce global breast mortality by 2.5 per cent by 2040.
- The aim is to reduce 2.5 million global deaths, particularly in low-income countries, where the progress to tackle the disease has been relatively slow.
- The primary objective of the initiative is to reduce global breast cancer mortality by increasing access to breast cancer early diagnosis and prompt comprehensive cancer management.

22. a

- Indian Railways ensures 100% compliance of payment of minimum wages to contract workers through e-application Shramik Kalyan Portal.
- E-Application ensures the compliance of provisions of Minimum Wages Act and also ensures that contractual workers working in Indian Railways get their rightful due by enforcing the contractors to regularly upload wage payment data into e-application.
- This helps Railways as Principal Employer, in keep vigil over wages disbursed by contractors to contract workers.

23. d

SERB Project Information System and Management (SERB – PRISM)



- It is the external public portal developed as part of the Management Information System (MIS).
- This portal is designed to provide information regarding projects sanctioned by SERB from 2011 onwards, including funding details, status, research summary, and project output information such as publications and patents.
- Search facilities enables retrieval of information about projects by Name of PI, institution, state, keywords, as well as year-wise listing and equipment that has been sanctioned by SERB in these projects.

Science and Engineering Research Board (SERB)

- It is a statutory body of the Department of Science and Technology (DST), established to support basic research in all frontier areas of science and engineering.

24. b

Herath Festival

- Kashmiri Pundits in Jammu and Kashmir celebrates most important festival Sivaratri, locally called 'Herath'.
- Walnuts and fish dishes are central to the festival.
- At the end of the religious ceremonies, a day is observed as 'Salaam', which entailed celebrations with the Muslim brethren in Kashmir.
- During such festivals shops run by Muslims provides paraphernalia for puja.
- Temporary stalls by Muslim vendors will sell local fish and Trout, which is preferred by the pundits during the occasion.

25. b

- The Supreme Court has recently asked the Centre to respond to a plea challenging the Places of Worship (Special Provisions) Act, 1991.
- In agreeing to examine the law, the court has opened the doors for litigation in various places of worship across the country including Mathura and Varanasi.

Places of Worship (Special Provisions) Act, 1991

- The Act prohibits conversion of any place of worship and to provide for the maintenance of the religious character of any place of worship as it existed on the 15th day of August, 1947, and for matters connected therewith or incidental thereto.
- No person shall convert any place of worship of any religious denomination into one of a different denomination or section.
- All suits, appeals or other proceedings regarding converting the character of a place of worship, that were pending on August 15, 1947, will stand abated when the Act commences and no fresh proceedings can be filed.
- However, legal proceedings can be initiated with respect to the conversion of the religious character of any place of worship after the commencement of the Act if the change of status took place after the cut-off date of August 15, 1947.
- Nothing contained in this Act shall apply to the place or place of worship commonly known as Ram Janma Bhumi-Babri Masjid situated in Ayodhya in the State of Uttar Pradesh.

Besides the Ayodhya dispute, the Act also exempted:

1. any place of worship that is an ancient and historical monument or an archaeological site, or is covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958
2. a suit that has been finally settled or disposed of
3. any dispute that has been settled by the parties or conversion of any place that took place by acquiescence before the Act commenced

26. b

Superior Mirage

- It is an optical illusion, seen, at sea–shore in winter evening, due to which an image of a ship is seen formed in air in sea–sky. The actual ship is nowhere visible.



- Such illusions are reasonably common in the Arctic but can also happen in UK winters when the atmospheric conditions are right, though they are very rare.
- The illusion is caused by a meteorological phenomenon called a temperature inversion.
- Normally, the air temperature drops with increasing altitude, making mountaintops colder than the foothills.
- But in a temperature inversion, warm air sits on top of a band of colder air, playing havoc with our visual perception.
- Because cold air is denser than warm air, it has a higher refractive index.
- In the case of the “hovering ship”, this means light rays coming from the ship are bent downwards as it passes through the colder air, to observers on the shoreline.
- This makes the ship appear in a higher position than it really is – in this instance, above the sea surface.

Inferior Mirage

- It is an optical illusion, seen in deserts at summer noon, due to which an inverted image of a distant tree is seen formed in hot sand below it, as if formed in water. Actually there is no water anywhere.

27. b

Ayya Vaikunda Swamikal

- Ayya Vaikunda (1809-1851) was a great humanist and social thinker.
- He founded 'samathva samajam' in 1836 and was considered the first socio reform movement in India.
- He is remembered as the first well known social reformer in India who critiqued the caste discrimination and religious hierarchy and fought against the practice of untouchability.
- His gave an exhortation of 'One caste, One religion, One clan, One world, One god'.
- He was against idol worship and he did not allow the portraits to draw his figure.
- He organized 'Sama Panthi Bhojana' in each and every place of worship in the name of 'Annadanam'.

28. b

Additional Tier-1 (AT1) Bonds

- AT1 Bonds stand for additional tier-1 bonds, these are unsecured bonds which have perpetual tenure, and these bonds have no maturity date.
- AT1 bonds are subordinate to all other debt and only senior to common equity.
- Mutual funds (MFs) are among the largest investors in perpetual debt instruments, and hold over Rs 35,000 crore of the outstanding additional tier-I bond issuances of Rs 90,000 crore.
- In a recent circular, the Sebi told mutual funds to value these perpetual bonds as a 100-year instrument.
- This essentially means MFs have to make the assumption that these bonds would be redeemed in 100 years.
- The regulator also asked MFs to limit the ownership of the bonds at 10 per cent of the assets of a scheme.
- According to the SEBI, these instruments could be riskier than other debt instruments.

29. a

Project RE-HAB

- It is launched by Khadi and Village Industries Commission (KVIC).
- Reducing Elephant – Human Attacks using Bees (RE-HAB) is to thwart elephant attacks in human habitations using honey bees fences.
- It aims to reduce loss of lives of both, humans as well as elephants.
- The pilot project was launched at four locations around village Chelur in Kodagu district of Karnataka.
- These spots are located on the periphery of Nagarhole National Park and Tiger Reserve and prone to human-elephant conflicts.

- Project RE-HAB is a sub-mission under KVIC's National Honey Mission, it uses bee boxes as a fence to prevent the attack of elephants.
- The boxes are connected with a string so that when elephants attempt to pass through, a tug or pull causes the bees to swarm the elephant herds and dissuade them from progressing further.

30. c

World Air Quality Report, 2020

- The report was launched by IQ Air, a Swiss air quality technology company specialising in protection against airborne pollutants, and developing air quality monitoring and air cleaning products.
- According to the report, Delhi remained the most polluted capital city in the world.
- The report, however, shows that Delhi's air quality improved by approximately 15 per cent from 2019 to 2020.
- India, on the whole, had improved its average annual PM_{2.5} (particulate matter) levels in 2020 than in 2019.
- 22 of the world's 30 most polluted cities are from India.
- South Indian cities recorded relatively better air quality, though they remained above the daily WHO limit of 25 g/m³ for most parts of 2020.

31. c

Project SAMVAD

- SAMVAD - Support, Advocacy and Mental Health Interventions for Children in Vulnerable Circumstances and Diseases
- The project, aimed at mental health outreach for children who are abandoned and orphaned, child survivors of trafficking, or in conflict with law, was led by National Institute of Mental Health and Neurosciences (NIMHANS).
- The Ministry of Women and Child Development is funding the project.
- The project is being run in collaboration with Panchayati Raj Ministry at a cost of Rs.56 crore for five years.

32. b

- The Government of National Capital Territory of Delhi (Amendment) Bill, 2021
- The Bill amends the Government of National Capital Territory of Delhi Act, 1991.
- The Bill provides that the term "government" referred to in any law made by the Legislative Assembly will imply Lieutenant Governor (LG).
- Inquiry by the Assembly into administrative decisions
- The Bill prohibits the Legislative Assembly from making any rule to enable itself or its Committees to:
 1. consider the matters of day-to-day administration of the NCT of Delhi
 2. conduct any inquiry in relation to administrative decisions
- Further, the Bill provides that all such rules made before its enactment will be void.

LG's opinion for executive actions

- The National Capital Territory of Delhi Act specifies that all executive action by the government, whether taken on the advice of the Ministers or otherwise, must be taken in the name of the LG.
- The Bill adds that on certain matters, as specified by the LG, his opinion must be obtained before taking any executive action on the decisions of the Minister/ Council of Ministers.

33. b

- A 90-day long expedition onboard research vessel RV Sindhu Sadhana with 30 scientists took off from Visakhapatnam recently.

TraceBioMe Project

- The Council of Scientific and Industrial Research-National Institute of Oceanography (CSIR-NIO), Goa, has initiated a mission recently under one of its flagship project TraceBioMe.



- CSIR-National Institute of Oceanography (NIO) has been commissioned to conduct genome and proteome mapping (micro nutrients) present inside single-cell organisms in the Indian Ocean.
- The mission aims for mapping the genetic diversity of organisms and the effect of micronutrients and trace metals on them in the Indian Ocean.
- The project envisages extensive sampling of water, sediments, planktons and various organisms in different parts of the Indian Ocean to study the presence of different kinds of organisms and the trace metals and micronutrients found therein using modern state-of-the-art molecular techniques as well classical techniques.

34. a

- Parliament has recently passed the Medical Termination of Pregnancy (Amendment) Bill, 2020 that increases the time period within which an abortion may be carried out.
- The Bill amends the Medical Termination of Pregnancy Act, 1971 which provides for the termination of certain pregnancies by registered medical practitioners.
- Currently, abortion requires the opinion of one doctor if it is done within 12 weeks of conception, and two doctors if it is done between 12 and 20 weeks.
- The Bill allows abortion to be done on the advice of one doctor up to 20 weeks, and two doctors in the case of certain categories of women between 20 and 24 weeks.
- The Bill states that the upper limit of termination of pregnancy will not apply in cases where such termination is necessary due to the diagnosis of substantial foetal abnormalities.
- For a pregnancy to be terminated after 24 weeks in case of substantial foetal abnormalities, the opinion of the State-level medical board is essential.

35. b

Bhaona

- It is a mythology-based theatrical performance that involves dialogues, songs, and dances.
- It was the creation of saint-reformer Sankardev, who started neo-Vaishnavite movement.
- It usually involves 40-50 performers wearing costumes and ornaments including those playing heavy drums and cymbals.
- The actors who perform it are known as Bhaoriya.

Other Art forms developed by Sankaradeva

- Initially, Sankaradeva wrote his prose in Sanskrit but later used Assamese and Brajavali.
- Brajavali is a literary language limited to theatrical usage, in which Sankaradeva wrote his songs and plays to develop the following artforms
- Borgeet- a new form of spiritual music.
- Monastic dance that evolved as Sattriya - a classical dance form which acts as a medium for propagation of the Vaishnava faith.

36. c

World Energy Transitions Outlook Report

- This report, previewed at the Berlin Energy Transition Dialogue 2021, was released by the International Renewable Energy Agency (IRENA).
- It says that the Covid-19 crisis offers an unexpected opportunity for countries across the world to decouple their economies from fossil fuels and accelerate the shift to renewable energy sources.
- It proposes energy transition solutions for the narrow pathway available to contain the rise of temperature to 1.5°C and halt global warming.
- IRENA estimates that by 2050, 90% of total electricity needs would be supplied by renewables, followed by 6% from natural gas and the remaining from nuclear.

37. b



- Union Health Minister Dr. Harsh Vardhan was recently appointed as Chairman of ‘Stop TB Partnership Board’.
- The Union Health Minister will hence serve a three year term, commencing July 2021, as the Chair of the Board of Stop TB Partnership.

Stop TB Partnership

- It was established in the year 2000.
- It is a unique international body with the power to align actors all over the world in the fight against TB.
- The Secretariat is based at Geneva, Switzerland.
- It is mandated to eliminate Tuberculosis as a public health problem.
- The organization was conceived following the meeting of the First Session of the Ad Hoc Committee on the Tuberculosis Epidemic held in London in March 1998.
- In its inaugural year itself, the Stop TB Partnership through the Amsterdam Declaration gave a call for collaborative action from ministerial delegations from 20 countries that bear the highest burden of TB.
- It has 1500 partner organizations which include international, non-governmental and governmental organizations and patient groups.
- The participation of a wide range of constituencies gives this global body the credibility and the broad range of medical, social and financial expertise needed to defeat TB.

38. c

- State of the world’s indigenous peoples: Rights to Land, territories and resources Report was released recently by the UN Department of Economic and Social Affairs (UN-DESA).
- According to the report, the recognition and protection of land titles and tenure of indigenous people is crucial to attaining United Nations-mandated Sustainable Development Goals,
- Countries should include the recognition of indigenous land tenure in their data on secure land tenure rights in SDG reporting.
- Indigenous land title should be made powerful enough to protect first peoples’ right to free, prior and informed consent on all decisions affecting their lands and resources.
- This would prevent the widespread destruction of critical ecosystems in accordance with the SDGs, the report said.

39. a

Allotment of Political Symbols

- The Election Symbols (Reservation and Allotment) Order, 1968 empowers the EC to recognise political parties and allot symbols.
- The EC is also the only authority to decide issues on a dispute or a merger.
- Guidelines, to get a symbol allotted are as follows:
 1. A party/candidate has to provide a list of three symbols from the EC’s free symbols list at the time of filing nomination papers.
 2. Among them, one symbol is allotted to the party/candidate on a first-come-first-serve basis.
 3. When a recognised political party splits, the Election Commission takes the decision on assigning the symbol.
- As per the Election Symbols (Reservation and Allotment) (Amendment) Order, 2017, party symbols are either:
 1. **Reserved** - Recognised political parties are given unique symbols which only the official candidates of that party can use. Eight national parties and 64 state parties across the country have “reserved” symbols.
 2. **Free** - The Election Commission also has a pool of nearly 200 “free” symbols that are allotted to the thousands of unrecognised regional parties that pop up before elections.

40. a



- Minister for Road Transport and Highways, Shri Nitin Gadkari has recently announced the Vehicle Scrapping Policy in Lok Sabha.

Background

- India has 51 lakh Light Motor Vehicles which are older than 20 years and 34 lakh Light Motor Vehicles which are older than 15 years.
- Around 17 lakh Medium and Heavy Commercial Vehicles are older than 15 years without valid fitness certificate.
- Older vehicles pollute the environment 10 to 12 times more than fit vehicles and pose a risk to road safety.

Objectives

- The objectives of the policy are to reduce population of old and defective vehicles, achieve reduction in vehicular air pollutants to fulfil India's climate commitments, improve road and vehicular safety, achieve better fuel efficiency, formalize the currently informal vehicle scrapping industry and boost availability of low-cost raw materials for automotive, steel and electronics industry.

Criteria

- The criteria for a vehicle to be scrapped is primarily based on the fitness of vehicles through Automated Fitness Centres in case of commercial vehicles and Non-Renewal of Registration in case of private vehicles.
- A Vehicle failing the fitness test or failing to get a renewal of its registration certificate may be declared as End of Life Vehicle.

Vehicle Scrapping Policy

- It is proposed that commercial vehicles be de-registered after 15 years in case of failure to get the fitness certificate. As a disincentive measure, increased fees for fitness certificate and fitness test may be applicable for commercial vehicles 15 year onwards from the date of initial registration.
- It is proposed that Private Vehicles be de-registered after 20 years if found unfit or in case of a failure to renew registration certificate. As a disincentive measure, increased re-registration fees will be applicable for private vehicles 15 year onwards from the date of initial registration.
- It is being proposed that all vehicles of the Central Government, State Government, Municipal Corporation, Panchayats, State Transport Undertakings, Public Sector Undertakings and autonomous bodies with the Union and State Governments may be de-registered and scrapped after 15 years from the date of registration.
- The scheme shall provide strong incentives to owners of old vehicles to scrap old and unfit vehicles through registered scrapping centres, which shall provide the owners with a scrapping certificate.

Incentives

- Scrap Value for the old vehicle given by the scrapping centre, which is approximately 4-6% of ex-showroom price of a new vehicle.
- The state governments may be advised to offer a road- tax rebate of up to 25% for personal vehicles and up to 15% for commercial vehicles
- The vehicle manufacturers are also advised for providing a discount of 5% on purchase of new vehicle against the scrapping certificate.
- In addition, the registration fees may also be waived for purchase of new vehicle against the scrapping certificate.

41. b

- According to a recent study, a series of smaller storms helps in maintaining the Jupiter's Great Red Spot.

Great Red Spot

- It is a persistent high-pressure region in the atmosphere of Jupiter, producing an anti-cyclonic storm that is the largest in the Solar System.
- It is about twice the diameter of Earth and blows at speeds of up to 54 km/hr along its periphery.

42. c

- Ministry of Power has recently launched the Gram Ujala Programme in Arrah, Bihar through a virtual event.



Gram Ujala Programme

- It is a customized program for rural India, based uniquely and innovatively on carbon finance.
- Under the programme, 7 watt and 12-Watt LED bulbs with 3 years warranty will be given by Convergence Energy Services Limited (CESL) to rural consumers against submission of working Incandescent bulbs.
- It will be implemented in villages of the 5 districts only and consumers can exchange a maximum of 5 LED bulbs available for only Rs.10 each.
- The programme will have a significant impact on India's climate change action.
- If all 300 million lights in India were replaced, the total energy savings would be 40,743 million kWh/year, avoided peak demand of 22,743MW/year and CO₂ reductions of 37 million tons per year.
- Gram Ujala will not only give a fillip to our fight against climate change by increasing energy efficiency, but also usher in a better standard of life, financial savings, and better safety for the citizens in rural areas.
- Gram Ujala Programme will be financed entirely through carbon credits and will be the first such programme in India.

43. b

Aluminium Air Batteries

- Aluminium-air batteries utilise oxygen in the air which reacts with an aluminium hydroxide solution to oxidise the aluminium and produce electricity.
- Aluminium-air batteries are primary cells, i.e., non-rechargeable.
- Once the aluminium anode is consumed by its reaction with atmospheric oxygen at a cathode immersed in a water-based electrolyte to form hydrated aluminium oxide, the battery will no longer produce electricity.
- Therefore, large scale use of aluminium-air battery-based vehicles would require the wide availability of battery swapping stations.
- Aluminium-air battery-based electric vehicles expected to offer much greater range of 400 km or more per battery compared to lithium-ion batteries.
- Aluminium-air based batteries are also expected to be significantly cheaper than lithium-ion batteries, thereby reducing the cost of electric vehicle usage and boosting electric vehicle adoption in the country.

44. c

- The largest asteroid predicted to pass by our planet in 2021 will be at its closest on March 21, providing astronomers a rare opportunity to get a good look at a rocky relic that formed at the dawn of our solar system.
- Called 2001 FO₃₂, the near-Earth asteroid will make its closest approach at a distance of about 1.25 million miles (2 million kilometers) – or 5 1/4 times the distance from Earth to the Moon.
- There is no threat of a collision with our planet now or for centuries to come.

Near-Earth Objects (NEOs)

- Near-Earth Objects (NEOs) are comets and asteroids that have been nudged by the gravitational attraction of nearby planets into orbits that allow them to enter the Earth's neighborhood.
- Composed mostly of water ice with embedded dust particles, comets originally formed in the cold outer planetary system while most of the rocky asteroids formed in the warmer inner solar system between the orbits of Mars and Jupiter.
- In terms of orbital elements, NEOs are asteroids and comets with perihelion distance (q) less than 1.3 astronomical unit (au).

45. c

- Power Grid Corporation of India Limited (POWERGRID), a central PSU under Ministry of Power has recently established an e-Tendering Portal-PRANIT.
- The portal will lead to less paperwork and ease of operation, making the tendering process more transparent.
- It has been certified by Standardisation, Testing and Quality Certification Directorate (STQC), Ministry of Electronics and Information Technology, Government of India.



- With this, POWERGRID is now the only organization in India to have an eProcurement solution on SAP Supplier Relationship Management (SRM), complying with all applicable requirements relating to security and transparency as stipulated by STQC.

46. d

Coalition for Disaster Resilient Infrastructure

- It is India by launched at the UN Climate Action Summit 2019, headquartered in New Delhi.
- It aims to promote the resilience of new and existing infrastructure systems to climate and disaster risks in support of sustainable development.
- It has 22 member countries and 7 organisations.
- International Conference on Disaster Resilient Infrastructure (ICDRI) is the annual international conference of the Coalition for Disaster Resilient Infrastructure (CDRI) in partnership with member countries, organizations and institutions to strengthen the global discourse on disaster and climate resilient infrastructure.
- The Coalition for Disaster Resilient Infrastructure (CDRI) is a multi-stakeholder global partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions.
- International Solar Alliance (ISA) was conceptualised during India-Africa Summit 2015.

47. b

- North Korea has recently fired two ballistic missiles into the Sea of Japan.
- Japan, however said, no debris has fallen within its territorial waters.
- The test comes after few days after North Korea reportedly fired two non-ballistic missiles into the Yellow Sea.
- Meanwhile UN Security Council resolutions have already banned North Korea from testing ballistic missiles which are considered threatening weapons.
- Tsugaru Strait connects the Sea of Japan with North Pacific Ocean.

48. d

Saguna Rice Technique

- It is a unique new method of cultivation of rice and related rotation crops without ploughing, puddling and transplanting (rice) on permanent raised beds.
- This is a zero till, Conservation Agriculture (CA) type of cultivation.

Salient Features of Saguna Rice Technique

- Ample oxygen supply to root zone
- Optimum moisture condition
- Reduces treacherous labor by 50%
- Reduction in cost of production by 40%
- Prevent fertility loss during puddling
- Stops emission of greenhouse gases
- Not dependent on erratic behavior of rain

49. c

- External Affairs Minister Dr. S. Jaishankar will participate in the 9th Ministerial Conference of Heart of Asia - Istanbul Process on Afghanistan in Dushanbe, Tajikistan recently.

Heart of Asia-Istanbul Process (HoA IP)

- It is a regional initiative of Afghanistan and the Republic of Turkey, which was launched on 2 November 2011 in Istanbul.



- The process aims to promote regional security, economic and political cooperation centered on Afghanistan through dialogue and confidence building measures (CBMs).
- It was founded in recognition of the fact that a secure and stable Afghanistan is vital to the prosperity of the Heart of Asia region.
- Since its inception in 2011 the HOA – IP has held 9 ministerial conferences hosted by different countries of the Heart of Asia region.
- HoA IP, has two chairs, Permanent chair and a Co-chair.
- Afghanistan is the permanent chair.
- The co-chairing shifts among the member states.
- Each year one-member state volunteer to co-chair the process with Afghanistan.
- India co-hosted the 6th Heart of Asia Ministerial Conference in Amritsar, Punjab in December 2016.

50. b

Lakes in Suez Canal from North to South

- Lake Manzala
- Lake Timsah
- Great Bitter Lake
- Little Bitter Lake