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POLITY

Statutory, Regulatory and various Quasi-judicial Bodies

1. Tribunal Reforms Bill

- » Prelims: Tribunal Reforms Bill, 2021- Provisions
- » Mains: Concerns associated with the tribunal reforms bill

Context:

- The Supreme Court has asked the government to produce material showing its reasons for introducing the Tribunal Reforms Bill, 2021.

Background:

Tribunal Reforms Bill, 2021:

- The Bill replaced the Tribunals Reforms (Rationalisation and Conditions of Service) Ordinance, 2021.

Major provisions:

- The Bill seeks to dissolve certain existing appellate bodies and transfer their functions (such as adjudication of appeals) to other existing judicial bodies
- Provisions regarding the composition of search-cum-selection committees
 - * The Chairperson and Members of the Tribunals will be appointed by the central government on the recommendation of a Search-cum-Selection Committee. The Committee will consist of: (i) the Chief Justice of India, or a Supreme Court Judge nominated by him, as the Chairperson (with casting vote), (ii) two Secretaries nominated by the central government, (iii) the sitting or outgoing Chairperson, or a retired Supreme Court Judge, or a retired Chief Justice of a High Court, and (iv) the Secretary of the Ministry under which the Tribunal is constituted (with no voting right).
 - * State administrative tribunals will have separate search-cum-selection committees.
 - * The central government must decide on the recommendations of selection committees preferably within three months from date of the recommendation.
- Provisions regarding qualification and terms and conditions of service of tribunal members
 - * The Bill provides for a four-year term of office (subject to the upper age limit of 70 years for the Chairperson, and 67 years for members).

- * It also specifies a minimum age requirement of 50 years for appointment of a chairperson or a member.

Details:

- A three-judge Bench, led by Chief Justice of India N.V. Ramana, has criticized the government for the complete absence of material justifying the Bill and the lack of proper debate in Parliament before it was made into law.

Concerns:

- Notably, the Tribunal Reforms Act of 2021 revives provisions of tenure and service of members of tribunals which were earlier struck down by the Supreme Court in a judgment. This gives rise to concerns of government overlooking the judiciary's observations in its previous judgments. This could lead to triggering of further litigation and causing inconvenience to citizens, courts and other stakeholders.
- The fact that this was done without debate in the parliament, raises concerns over the falling standards of lawmaking in the country.
- The bill has been criticised for undermining the independence of the judiciary by giving the government wide powers regarding appointments, service conditions, salaries, etc. of members of key tribunals.

Statutory, Regulatory and various Quasi-judicial Bodies

2. High number of vacancies in tribunals

- » Prelims: Relevant Constitutional articles
- » Mains: Concerns associated with large number of vacancies in tribunals

Context:

- The Supreme Court has criticized the Central government for its reluctance to ensure timely filling up of the vacancies in tribunals across the country.

Details

- Chief Justice of India read out the details of over 240 vacancies in key tribunals with some tribunals even lacking presiding officers.
 - * The tribunals included some critical ones like the National Green Tribunal, Income Tax Appellate Tribunal and Central Administrative Tribunal among others.
- The bench also lamented the fact that

recommendations to the tribunals by the selection committees led by sitting Supreme Court judges have been largely ignored by the government.

Concerns:

- The large vacancies have made the tribunals ineffective and redundant.
- The large vacancies mainly attributable to the delay in appointments have rendered the tribunals defunct and with High Courts having no jurisdiction over the areas of law wielded by tribunals, litigants have nowhere to go for justice and would adversely impact the right of the people to access justice
- Concerns have been raised on independent functioning of tribunals being undermined by repeatedly framing rules that seek to provide for greater executive control over the tenure, emoluments and conditions of service of those heading the tribunals.
- The primary reasons why certain kinds of disputes were allocated to the tribunals was specialisation, domain expertise and relatively quicker adjudication.
 - * These purposes are lost as the tribunals have become nearly dysfunctional through a large number of vacancies.
- Besides, the Union government has been reluctant to create a national body for overseeing the work related to the appointment of members on tribunals as well as the appraisal of their functioning.
- The delay in appointments to the tribunals is causing great harm to India's justice delivery system.

Functioning of the Indian Judiciary

3. New appointments to the Supreme Court

- » Prelims: Collegium System; Article 142
- » Mains: Delay in appointment to higher judiciary-factors responsible and remedial measures

Context:

- The Supreme Court Collegium led by the Chief Justice of India (CJI) has recommended/selected nine persons to be appointed to the Supreme Court.

Background:

Collegium System:

- The Collegium System is a system under which appointments of judges to Supreme Court and High Courts and transfers of judges of High Courts are decided by a forum of the Chief Justice of India and the four senior-most judges of the Supreme Court.

- The recommendations of the names of lawyers or judges are sent by the Collegium to the Central Government which acts on these recommendations.

Delays in the appointment process:

- Every CJI during his tenure had taken up the filling up of vacancies as a matter of highest priority, but many could not succeed due to the complexity involved.
 - * It had become tough to build a consensus among the collegiums members around one person or a few persons.
 - * The delay in the government accepting the recommendations has been only adding to the delay in the appointment process.
- The vacancies had been seriously affecting the functioning of the judiciary.
 - * On average, the High Courts suffer at least 40% vacancies. Some of them were functioning only with half their sanctioned strength.

Details:

- This is the first time ever that nine persons have been selected at one go.
- The Supreme Court is now near its full strength with one just vacancy left now. The near full strength will ease the pressure on the Supreme Court considerably.

Aspects involved in selection/recommendation:

- The norms to be followed in judicial appointments is a judicious blend of merit, seniority, interests of the marginalised and deprived sections of society, women, religions, regions and communities.

Merit:

- In the Supreme Court Advocates-on-Record Association and Another vs Union of India (1993), the Court spelt out the parameters within which to accomplish the task of selecting candidates for appointment to the higher judiciary. The most crucial consideration is the merit of the candidates. The merit is the ability of the judge to deliver complete justice.

Representation of all sections:

- Given India's diversity in terms of language, region, religion, community and caste, it becomes necessary that the state consider this diversity in the appointment process in every sphere including judiciary and give all these sections equal opportunity to be able to bring them into the mainstream
- The overriding concern is to ensure equal opportunities to all classes of people including backward classes or scheduled castes or scheduled tribes or minorities or women

- The selection of three women judges, with one of them having a chance to head the top court, a judge belonging to the Scheduled Caste and one from a backward community and the nine selected persons belonging to nine different States in the recent resolution of the collegium are all attempts in this direction.

Transparency:

- Given the fact that India is perhaps the only country where the judges select judges to the higher judiciary, it becomes absolutely necessary to make the norms of selection and appointment transparent.

Conclusion:

- With the Supreme Court Collegium showing the way in judicial appointments, the Government must match the pace and take the process of appointments to its logical conclusion at the earliest.

Additional information:

Article 142 of the Indian Constitution:

- Article 142 allows the Supreme Court to pass any order necessary to do "complete justice" in any case. "The Supreme Court in the exercise of its jurisdiction may pass such decree or make such order as is necessary for doing complete justice in any cause or matter pending before it..."

Criminalization of Politics

4. Delay in proceedings of criminal cases against MPs and MLAs

- » Prelims: Representation of People's act- relevant clauses
- » Mains: Reasons for delay and associated concerns; Recommendations to address the delays

Context:

- A three judge bench of the Supreme Court headed by the Chief Justice of India has been hearing a plea about the large number of criminal cases pending against both sitting and former MPs and MLAs.

Details:

- As per a report submitted by the court's amicus curiae, a large number of cases have been pending against sitting MPs and MLAs with a substantial number of these cases falling under serious offences category like the Prevention of Money Laundering Act (PMLA), 2002 and some being punishable with life imprisonment.
- Some of the cases against sitting and former MPs and MLAs being investigated by agencies such as the CBI and the Enforcement Directorate (ED), have been pending for over a decade.

- In some cases, even the charges have not been framed or charge sheet filed, though the offences were alleged to have been committed several years ago.

Reasons for the delay:

Inadequately resourced investigative agencies:

- The Supreme Court noted that the lack of adequate manpower and infrastructure with probe agencies such as the Central Bureau of Investigation (CBI) and Enforcement Directorate (ED) had led to overburdening of the investigative agencies and was adding to the delay in the judicial proceedings.

Overburdened judiciary:

- The large number of cases having to be dealt with by the trial courts has adversely impacted their functioning and in contributing to the delay in judicial proceedings.
- The special courts constituted to hear cases against sitting MPs and MLAs have been too few to handle the large number of cases.

Misuse of judicial provisions:

- Some of the accused politicians have been able to obtain stay orders against criminal proceedings from the higher judiciary. They have also resorted to using other available provisions like adjournments to deliberately delay the proceedings.

Extraneous reasons:

- Some of the ED cases have been held up because they spanned to tax havens abroad, which have refused to cooperate with investigations.

Recommendations:

- To ensure the spirit of rule of law, it is very important to ensure timely disposal of cases against sitting MPs and MLAs. In this regard the following measures could be helpful.
 - * A judicial order from the Supreme Court directing lower courts to complete the pending trial proceedings in a "mandatory time-bound manner", possibly within the next six months should be explored which would reduce the avenue for misuse of judicial provisions.
 - * Efforts must be made to rationalize the number of cases before each trial court and adequate funding must be provided to resource them adequately in terms of manpower, infrastructure and technology.
 - ◊ A freeze on the transfer of judicial officers trying criminal cases against MPs and MLAs must be ordered. Adoption of virtual court facilities needs to be improved. These measures will allow for the speedy disposal of cases.

- * A mechanism must be put in place soon to monitor the progress of criminal trials involving legislators. This will help understand better the reasons for the delay and devise suitable measures to address them.
- * The investigative agencies like CBI and ED must be adequately resourced in terms of manpower and infrastructure and measures to make their functioning more autonomous must be considered to ensure their independence from the government. This will help them function in an impartial manner.

Criminalization of Politics

5. Political parties get 48 hours to publish candidates' criminal records

- » Mains: Measures being taken by the judiciary to address criminalization of politics

Background:

February 2020 judgment of the Supreme Court:

- Over the last few years, there has been an alarming increase in the incidence of criminals in politics.
- Based on the reasoning that rapid criminalisation of politics cannot be arrested by merely disqualifying tainted legislators but should involve cleansing of the political parties, the Supreme Court had ordered political parties to publish the entire criminal history of their candidates along with the reasons that provoked them to field suspected criminals over decent people.
- The information had to be also published in a local and a national newspaper as well as the parties' social media handles, including Twitter and Facebook.
- The political parties had to submit compliance reports with the Election Commission of India within 72 hours or risk contempt of court action.

Details:

- The Supreme Court has imposed fines on major political parties, for failing to conform with its February 2020 judgment in the 2020 Bihar Assembly elections.
- The court held that the concerned parties had subverted the verdict by either publishing inadequate information about their candidates' criminal antecedents or by printing them in obscure newspapers. The Supreme Court held that the concerned political parties were trying to cover up from voters the criminal past of the candidates they had fielded.

Modifications in the February 2020 judgment:

- In order to make the right of information of a voter more effective, the court has ordered certain modifications in its February judgment.
- * The Election Commission of India has been ordered to launch a dedicated mobile app for voters to get details of the criminal history of the candidates.
- * The Election Commission of India has also been ordered to form a separate cell to monitor political parties on their compliance with the court's judgment.

Important legislations in news

6. LS clears Bill restoring States' rights to specify OBC groups

- » Prelims: NCBC; Article 340 and 342A of the Indian constitution
- » Mains: Significance of the new Constitutional amendment

Context:

- The passing of the 127th Constitution Amendment Bill, 2021 in Lok Sabha.
- * It has become the 105th Constitutional amendment act after receiving assent of the President.

Background:

Constitutional provisions relating to reservation:

- As per the Indian Constitution, Articles 15 (4), 15 (5), and 16 (4) confer power on the Governments to declare and identify the list of socially and educationally backward classes.
- As a practice, separate OBC lists are drawn up by the Central Government and each State concerned.

102nd Constitutional Amendment:

- The Amendment established a National Commission for Backward Classes by adding Article 338B to the Constitution.
- The Amendment also added Article 342A, under which the President shall notify a list of Socially and Economically Backward Classes (SEBC) in relation to each State and Union Territory, in consultation with Governors of the respective States. Once this 'Central List' is notified, only Parliament could make inclusions or exclusions in the list by law.

Supreme Court Verdict in the Maratha reservation issue:

- While holding the Maratha reservation unconstitutional, the Constitution Bench of the Supreme Court also dealt with the issue of the

102nd Constitution Amendment.

- The SC upheld the 102nd Constitutional Amendment Act that inserted Articles 338B and 342 A.
- The constitutional bench had ruled that after the passage of the 102nd Constitution Amendment Act in 2018, the States do not have any power to identify 'socially and educationally backward' (SEBC) classes and this power lay in the hands of only the Union government.

Details:

- The Amendment Bill will amend clauses 1 and 2 of Article 342A and will also introduce a new clause 3.
- The 127th Constitution Amendment Bill is designed to clarify that the State Governments can maintain the 'state list' of OBCs as was the system prior to SC judgment. The latest 'State List' will be taken out completely of the ambit of the President and will be notified by the State Assembly as per the proposed bill.

Significance:

- The Bill seeks to restore the power of State governments to identify OBCs that are socially and educationally backward.
- * The Union government's argument has been that the intent of the 102nd amendment was only to create a Central List that would be applied only in the Central government and its institutions. It had nothing to do with the State Lists of backward classes or the State governments' powers to declare a community backward.
- The bill will benefit around 671 OBC communities because if the state list was abolished, nearly 671 OBC communities would have lost access to the reservations in educational institutions and in appointments.

Calls for removal of 50% cap on reservations:

- During the discussions on the proposed amendment, there were calls from lawmakers across parties to remove 50% ceiling in reservation.
- * In the 1992 Indra Sawhney & Others v. Union of India judgment, the Supreme Court had imposed a ceiling of 50 per cent for reservation quota.
- * Notably, at least three Indian States- Haryana, Tamil Nadu, and Chhattisgarh- have introduced quotas that breach the total 50% ceiling. On the other hand, states like Gujarat, Rajasthan, Jharkhand, and Karnataka have asked the Supreme Court to hike the quota ceiling.
- * The SC in the Maratha reservation issue had

held that extending the 50% limit would be tantamount to establishing a society based on caste rule rather than one founded on equality. It reiterated that reservation under Article 16(4) should not exceed 50% except in extraordinary circumstances.

Additional information:

- The First Backward Classes Commission was set up by a presidential order in 1953 under the chairmanship of Kaka Kalelkar. It is also known as the First Backward Classes Commission or the Kaka Kalelkar Commission.
- * Article 340 in the Constitution of India allows for the appointment of a Commission to investigate the conditions of backward classes
- The Mandal Commission, the Socially and Educationally Backward Classes Commission (SEBC), was established in 1979 with a mandate to "identify the socially or educationally backward classes" of India.

Important Supreme Court Judgments

7. What has the Supreme Court ruled on 'creamy layer'?

- » Mains: Concept of creamy layer and its significance in ensuring the effectiveness of reservation provisions

Context:

- The recent observation made by a Division Bench of the Supreme Court on the criteria for identifying creamy layer of backward classes in India.

Details:

- The Division has observed that economic criterion cannot be the sole basis for identifying the 'creamy layer' of a backward class, and that other factors like social advancement, education, employment also matter in the identification of creamy layer.

Creamy layer concept:

- The 'creamy layer' concept was introduced in the Supreme Court's Indra Sawhney judgment of 1992.
- * In the judgment, the Court although upheld the government's decision to give 27% reservation to Other Backward Classes (OBCs), it emphasized the need to identify sections of backward classes who were already highly advanced socially as well as economically and educationally to exclude them from receiving the benefits of reservation.

- The Constitution allows for the provision of reservation though it may look like it goes against the provision of right to equality, based on the premise that reservation would contribute towards the upliftment of the poor and underprivileged.
- * Upon the failure of the states to clearly define creamy layer for backward classes, the SC itself laid down the criteria for determining the 'creamy layer' among backward classes. Persons from backward classes who occupied posts in higher services such as IAS, IPS and All India Services, people with sufficient income who were in a position to provide employment to others and persons with higher agricultural holdings or income from property were to be considered as creamy layer. They having reached a higher level of social advancement and economic status were not entitled to be treated as backward.

Conclusion:

- A clear understanding of the Indra Sawhney judgment shows that social advancement, including education and employment, and not just wealth, was key to identify the 'creamy layer'.
- The income limit for limiting the creamy layer must be such as to mean and signify social advancement.

Important Supreme Court Judgments

8. Arrest is not always a must, says Supreme Court

- » Mains: Concerns with unwarranted arrests:

Context:

- Supreme Court bench's observation on the issue of unwarranted arrests of accused during investigation process.

Details:

- The Supreme Court criticizing the rampant misuse of the powers to arrest even in situations where it is not necessary has held that merely because law allows arrest it does not mean the State can use the power indiscriminately.
- The Supreme Court bench has called for a distinction between the existence of the power to arrest and the justification for exercise of it.

Concerns with unwarranted arrests

- Unwarranted arrests can cause great harm to the reputation and self-esteem of a person.
- It goes against the right to personal liberty which is an important aspect of the Indian constitution

under Article 21.

Legitimate grounds for arrest of an accused

- Custodial investigation being necessary
- If the accused has committed a heinous crime
- There being a possibility of the accused influencing the witnesses or tampering evidence
- Possibility of the accused going absconding

Important Supreme Court Judgments

9. Supreme Court views on externment orders

- » Mains: Externment orders; Relevant Constitutional articles:

Context:

- The Supreme Court's view of the use of externment order.

Externment order:

- A system of preventing people from entering into a particular place for a certain period, due to their ability to affect that place's conditions by criminal activity, as exhibited by their prior conduct, this system of restraining the criminal activities is known as externment.
- Thus externment orders prevent the movement of a person in certain areas.

Relevant Constitutional provisions:

- Article 19(1)(d), 19(1)(e), and 21 of the Indian Constitution guarantees the right to every citizen of India to move freely throughout the country and have a right to personal liberty.
- * Article 19(1)(d) of the Indian Constitution gives citizens of India the right to move freely in the nation's territory.
- * Article 19(1)(e) of the Indian Constitution gives citizens of India the right to reside and settle in any part of the territory of India.
- * Article 21 of the Indian Constitution secures two rights- Right to life and the Right to personal liberty to Indian citizens. Article 21 states that "No person shall be deprived of his life or personal liberty except according to a procedure established by law."
- The Rights under Article 19(1)(d) and 19(1)(e) are subjected to coherent restrictions enabled by the State "in the interest of general public" as defined under Article 19(5) of the Constitution of India. The most prevalent restriction under 19(5) of the Indian Constitution is the externment of a person entering a particular place.

Details:

- The Supreme Court has held that the power of the State to pass an externment order should be exercised only in "exceptional cases" to maintain law and order in a locality and/or prevent breach of public tranquillity and peace
- While the SC acknowledged the utility of externment orders in maintaining law and order, the court held that a person cannot be denied his fundamental right to reside anywhere in the country or to move freely throughout the country on flimsy grounds or as a vindictive or retaliatory measure.
- The observation by a bench comprising justices Indira Banerjee and V Ramasubramanian came while setting aside an externment order against a journalist and social worker issued by the district authorities in Amravati city, Maharashtra.

Important Supreme Court Judgments

10. Governor's pardon power overrides 433A: SC

- » Prelims: Pardoning powers of the governor; difference when compared with the pardoning powers of the President; Types of pardoning:

Context:

- A Supreme Court Bench considering the feasibility of remission policies in Haryana.

Background:

Pardoning powers in India:

- The Indian Constitution grants pardoning powers to the President of India as well as the governors of each state.
- Article 72 says that the president shall have the power to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of any offense.
- There are five different types of pardoning.
 - * Pardon: It removes both the sentence and the conviction and completely absolves the convict from all sentences, punishments and disqualifications.
 - * Commutation: It means changing the type of punishment given to the guilty into a less harsh one. Here the nature of punishment also changes.
 - * Reprieve: It implies a stay of the execution of a sentence for a temporary period. It aims to provide time for a guilty person to apply for Presidential Pardon or some other legal remedy to prove his/her innocence.

- * Respite: It means reducing the quantum or degree of the punishment in view of some special circumstances, like pregnancy, mental condition etc.
- * Remission: means changing the quantum of the punishment without changing its nature, for example reducing twenty year rigorous imprisonment to ten years.
- A similar and parallel power vests in the governors of each state under Article 161.
- However there are some differences between the pardoning powers of the President and the Governor.
 - * The powers of the governor are limited to offences against law relating to a matter to which the executive power of the State extends.
 - * The President can grant pardon in all cases where the sentence given is the sentence of death but the pardoning power of the Governor does not extend to death sentence cases.
 - * The power of the President to grant pardon extends in cases where the punishment or sentence is by a Court Martial but Article 161 does not provide any power to the Governor with respect to Court Martial cases.

Details:

Section 433A of the Code of Criminal Procedure:

- The Supreme Court has held that the Governor of a State can pardon prisoners, including those on death row, even before they have served a minimum 14 years of prison sentence.
- * Section 433A of the Code of Criminal Procedure mandates that a prisoner's sentence can be remitted only after 14 years of jail.
- The SC has noted that the constitutional power conferred on the President/Governor to grant pardon under Articles 72 or 161 of the Constitution overrides the provisions under Section 433A of the Code.

Binding nature of aid and advice of the government:

- The court also noted that the sovereign power of a Governor to pardon a prisoner under Article 161 is actually exercised by the State government and not the Governor on his own as the Governor is bound to act on the aid and advice of the State Government.

Miscellaneous

11. Fifth schedule areas

- » Prelims: Fifth schedule area- Criteria for selection and special provisions; relevant constitutional articles:

- The Fifth Schedule of the Constitution deals with the administration and control of Scheduled Areas as well as of Scheduled Tribes residing in any State other than the States of Assam, Meghalaya, Tripura and Mizoram.
- At present, 10 States namely Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan and Telangana have Fifth Schedule Areas.
- Tribal habitations in the states of Kerala, Tamil Nadu, Karnataka, West Bengal, Uttar Pradesh and Jammu & Kashmir have not been brought under the Fifth or Sixth Schedule.
- As per the Article 244(1) of the Indian Constitution, Scheduled Areas means such areas as the President may by order declare to be Scheduled Areas.

Criteria

- The criteria followed for declaring an area as Scheduled Area are
 - * Preponderance of tribal population;
 - * Compactness and reasonable size of the area;
 - * Under-developed nature of the area; and
 - * Marked disparity in economic standard of the people.

Special Provisions for Fifth Schedule Areas

- The Governor of each State having Scheduled Areas shall annually, or whenever so required by the President, make a report to the President regarding the administration of Scheduled Areas in that State.
- The Union Government shall have executive powers to give directions to the States as to the administration of the Scheduled Areas.
- The Constitution provides for establishment of a Tribes Advisory Council (TAC) in any State having Scheduled Areas. The TAC would consist of not more than twenty members of whom, three-fourths shall be the representatives of the Scheduled Tribes in the Legislative Assembly of the State. The TAC shall advise on such matters pertaining to the welfare and the advancement of the STs in the State as may be referred to them by the Governor.
- The Governor may direct that any particular Act of Parliament or of the Legislature of the State shall or shall not apply to a Scheduled area or any part thereof in the State, subject to such exceptions and modifications, as specified.
- The Governor may make regulations like
 - * Prohibit or restrict the transfer of land by or

among members of the Scheduled tribes in such area;

- * Regulate the allotment of land to members of the STs in such area;
- * Regulate the carrying on of business as money-lender by persons who lend money to members of the STs in such area.

Context

- On the occasion of the International Day of the World's Indigenous Peoples, the tribal outfits in Rajasthan have demanded inclusion of over 165 village panchayats of seven districts in the scheduled areas under the Tribal Sub-Plan (TSP).
- The demand is based on the fact that the population of Scheduled Tribes in these panchayats had crossed 50%, making them eligible to be declared as scheduled areas.
- This they claim would facilitate the control of local communities over minor minerals and minor forest produce as well as development activities in the region while also ensuring statutory protection of the tribal population.

Parliament functioning

12. Public Accounts Committee

- » Prelims: PAC and CAG- Functions and membership:
- The Public Accounts Committee (PAC) examines the audit reports submitted by the Comptroller and Auditor General (CAG) of India before the President who lays it before each house of the Indian Parliament.
- The Public Accounts Committee examines public expenditure. That public expenditure is not only examined from a legal and formal point of view to discover technical irregularities but also from the point of view of the economy, prudence, wisdom, and propriety.
- The committee has 22 members, 15 from Lok Sabha (Lower House) and 7 members from Rajya Sabha
- The members of PAC are elected from the Parliament every year with proportional representation by means of a single transferable vote. The Speaker appoints the chairperson from amongst the members. As a convention, the chairperson has been from the opposition party.

Context:

- The Public Accounts Committee's scheduled tour of Srinagar, Kargil, Leh and Drass.

Parliament and State Legislatures - Functioning

13. Adjournment sine die

- » Prelims: Adjournment sine die and adjournment:
- Adjournment sine die means terminating a sitting of house for an indefinite period. In other words, when the House is adjourned without naming a day for reassembly, it is called adjournment sine die. This is different from adjournment which terminates a sitting of the House for a specified time.

- The power of adjournment as well as adjournment sine die lies with the presiding officer of the House.

Context:

- The ongoing session of the Lok Sabha was adjourned sine die, two days ahead of its scheduled date due to repeated disruptions.

ECONOMY

Legislations in news

1. Doing away with retrospective taxation

- » Prelims: Bilateral investment treaty; Investor-State Dispute Settlement (ISDS) tribunals
- » Mains: Significance of the new amendment with respect to retrospective taxation

Context:

- The Union Finance Minister has introduced the Taxation Laws (Amendment) Bill in the Parliament to nullify the retrospective tax clauses that were introduced in 2012.

Background:

Retrospective tax clause:

- The retrospective tax clauses were introduced in 2012 to bring past indirect transfer of Indian assets under the ambit of taxation.
- This provision was invoked against foreign investors such as Vodafone and Cairn Energy.
 - * Vodafone had in 2007 purchased a 67% stake in Hutchison Whampoa.
 - * Cairn Energy had undertaken a corporate reorganisation in 2006-07
- Large tax demands were raised against these companies and upon their failure to pay, their assets were frozen by the Indian authorities.

Concerns:

- The retrospective tax and consequent tax demand had been termed "tax terrorism" by few sections and it had become a point of concern for potential investors.
- This provision was thought to go against the principle of tax certainty and damage India's reputation as an attractive foreign investment destination.

Steps taken by the affected companies:

- This move of the Indian government was challenged by the affected companies. Separate international arbitration tribunal verdicts in the Vodafone and Cairn cases have ruled against India's retrospective tax demands as being in breach of bilateral investment protection agreements.
- Cairn Energy, which was awarded \$1.2 billion by an international tribunal, filed cases in at least ten global jurisdictions, including the U.S., the U.K., Canada and Japan, to seize India's assets in lieu of the award as the government did not abide by the tribunal's decision.

- Cairn Energy has recently secured an order from a French court to freeze India's assets in Paris.

Details:

- As per the proposed amendments, any tax demand made on transactions that took place before May 2012 shall be dropped, and any taxes already collected shall be repaid, without interest.
- However to be eligible, the concerned taxpayers would have to drop all pending cases against the government and give an undertaking that they would not make any further claims.

Reasons for the proposed amendment:

Avoid legal sanctions:

- The government has been fighting legal cases against Vodafone and Cairn Energy on this aspect.
- The loss of the arbitration cases and Cairn's pursuit of India's assets abroad may have forced the government to propose the amendments.

Need for economic recovery:

- Quick recovery of the economy after the COVID-19 pandemic is the need of the hour and foreign investment has an important role to play in this regard.
- The proposed change will go a long way in undoing the damage done by the retrospective tax clause on India's image as a foreign investment destination and help attract higher inward investments. The proposed change will help end the spectre of policy uncertainty for potential investors. This would help restore India's reputation as a fair and predictable regime apart from helping put an end to unnecessary, prolonged and expensive litigation.

Sovereign right to tax :

- The recently introduced Taxation Laws (Amendment) Bill has brought to light the topic of bilateral investment treaties (BITs) and the sovereign right to tax.
 - * The retroactive tax amendment of 2012 resulted in Vodafone and Cairn Energy suing India before Investor-State Dispute Settlement (ISDS) tribunals of India-Netherlands and India-U.K. bilateral investment treaties (BITs).
- ◊ Notably, India in its 2016 Model BIT carved out taxation measures completely from the scope of the investment treaty.

* Both the tribunals ruled against India's retroactive amendment of tax laws.

- Several ISDS tribunals have held that the tax policy of a country is a matter relating to the sovereign power of the state, and thus the State has a sovereign right to enact the tax measures it deems appropriate at any particular time.
- However it should be noted that the state's sovereign right to impose taxes are not absolute and there are limits to it.
- Two provisions of relevance in this regard are expropriation and the fair and equitable treatment provision.
- * The tax should not be discriminatory or arbitrary and it should not be confiscatory.
- * Fair and equitable treatment envisions a certain degree of legal certainty in taxation measures. Also any legal changes such as amending the tax laws should be done in a reasonable and proportionate manner.

Conclusion:

- The biggest take away from the Cairns and Vodafone fiasco is that India should exercise its right to regulate while being mindful of its international law obligations, acting in good faith and in a proportionate manner.
- India's right to tax in the public interest should be balanced with the investor's interest of legal certainty.

Indian Economy and issues relating to growth and development

2. Monetary policy

- » Prelims: Monetary Policy Committee; Repo rate; accommodative stance; Stagflation
- » Mains: Concerns associated with accommodative stance of the MPC

Context:

- Monetary Policy Committee (MPC) meeting.

Details:

Accommodative stance:

- The Reserve Bank of India's Monetary Policy Committee (MPC) has voted unanimously to keep the repo rate unchanged at 4%.
- Majority of the members of MPC agreed to retain the accommodative stance as long as necessary to revive and sustain growth on a durable basis in a bid to help the economy recover from the economic shock of the COVID-19 pandemic.
- * Accommodative monetary policy, also known as loose credit or easy monetary policy, occurs when a central bank attempts to expand the

overall money supply to boost the economy when growth is slowing.

- * An accommodative stance means a central bank will cut rates to inject money into the financial system whenever needed.

Projections:

- RBI has projected 9.5% real GDP growth in the current fiscal year.
- The MPC has raised its forecast for retail inflation to 5.7%, from the previous 5.1% estimate.

Potential challenges to economic recovery:

- The rising input prices across manufacturing and services sectors, weak demand and the higher-than-expected CPI inflation could dampen economic recovery.
- There is the possibility of a third wave, especially in the background of rising infections in certain parts of the country.
- Aggregate supply is also lagging below pre-pandemic levels possibly due to supply chain constraints and poor investor confidence.

Concerns regarding MPC stance:

- The decision to maintain accommodative stance despite the higher inflationary pressures leads to serious concerns.

Overlooking of the core mandate of MPC:

- The Central bank seems to be overlooking its mandated function of inflation targeting and the benefits thereof by delaying steps to rein in inflation.
- * Stability in inflation rate fosters credibility of the monetary policy framework. This would help better anchor inflation expectations which in turn will help reduce uncertainty for investors, increases external competitiveness and would thus be growth-promoting.

Fears of stagflation:

- The central bank's policies have failed to engender a meaningful recovery even as inflation continues to hover around the upper bound of the inflation target. This raises concerns of stagflation in the Indian economy.
- * MPC has lowered its growth projections and raised its fiscal-year inflation projection by 60 basis points to 5.7%.

Challenges associated with easy monetary policy:

- Monetary Policy Committee (MPC) member Jayanth Varma has expressed serious reservations about the RBI's protracted "accommodative" policy stance and has argued that the MPC's forward guidance and stance were in fact becoming "counter productive" for the Indian economy based on the following arguments.

- * The easy monetary policy has given rise to persistent inflationary pressures in the economy.
- * The MPC's accommodative stance despite the relatively high inflation levels would create the erroneous perception that the MPC is no longer concerned about inflation and is focused exclusively on growth. This could lead to the risk of inflationary expectations being disanchored.
- * There seems to be limited ability of the monetary policy to mitigate the economic impact of the pandemic. The monetary policy is much less effective than fiscal policy for providing targeted relief to the worst affected segments of the economy.
- * Also given the high possibility of the COVID-19 pandemic persisting for another 3-5 years through the mutations, keeping monetary policy highly accommodative for such a long horizon would be unviable and counter-productive.

Recommendations:

- The MPC may as well consider normalising rates to rein in the inflation levels in the economy.
- MPC must look to simultaneously preserve financial stability through controlled inflation rates and support a durable economic revival.
- With crude oil prices at elevated levels, a calibrated reduction of the indirect tax component of pump prices by the Centre and States can help lessen inflation pressure to a great extent.

Governmental schemes/Programmes/Initiatives

3. National Mission on Edible Oils – Oil Palm

- » Prelims: NMEO-OP provisions and targets
- » Mains: Significance and concerns associated with NMEO-OP; Recommendations

Context:

- Approval of the National Mission on Edible Oils – Oil Palm (NMEO-OP) by the Cabinet.
- * The NMEO-OP's predecessor was the National Mission on Oil Seeds and Oil Palm.

Background:

India's heavy dependency on edible oil imports:

- Despite being a major agricultural exporting country, India lacks self-sufficiency in terms of edible oils and continues to be heavily dependent on imports for its edible oil needs. The share of imported palm oil is more than 55%.
- India's dependence on expensive imports has

driven retail oil prices to new highs.

Details:

- The new mission will strive to ensure self-sufficiency in edible oil production. Under the NMEO-OP mission, the aim is to reduce import dependence from 60% to 45% by 2024-25, by increasing domestic edible oil production from 10.5 million tonnes to 18 million tonnes, a 70% growth target.
 - As part of the Palm oil related targets, the Mission hopes to increase oil palm acreage by an additional 6.5 lakh hectares by 2025-26 and grow production of crude palm oil to 11.2 lakh tonnes by 2025-26 and up to 28 lakh tonnes by 2029-30.
 - * Currently, less than four lakh hectares are planted with oil palm in India.
 - The Centre will offer price assurances, viability gap funding and planting material assistance to oil palm farmers to boost domestic production.
 - * The provision of price assurance will reduce the risk for farmers facing price fluctuation due to volatility in the international market. In case of government will fix a viable palm oil price and in case of high volatility the government will pay the difference in price to the farmers through direct benefit transfer. This assurance will inculcate confidence in the Indian oil palm farmers to go for increased area and thereby more production of palm oil. The assurance to the farmers will be in the form of the viability gap funding and the industry will be mandated to pay 14.3% of the crude palm oil prices.
 - * The Mission will also aim to more than double the support provided for the cost of planting materials. A substantial increase has been made for planting material for oil palm and this has increased from Rs 12,000 per ha to Rs.29000 per ha. Further substantial increase has been made for maintenance and inter-cropping interventions as well.
 - North-eastern India and the Andaman and Nicobar Islands have been identified as prime locations for oil palm cultivation. In a bid to encourage oil palm cultivation in northeastern India and in the Andaman and Nicobar islands, the Centre will bear an additional cost of 2% of the crude palm oil prices in these States.
 - Over a five-year period, the financial outlay for the National Mission on Edible Oils – Oil Palm (NMEO-OP) will amount to Rs. 11,040 crore.
 - Along with promoting the cultivation of oil palm, this mission will also expand the cultivation of other traditional oilseed crops in India.
- #### **Significance of the NMEO-OP mission:**
- The mission with its focus on increasing the production of edible oil will enable reduction in

the import dependency to some extent and will enable self sufficiency in the longer run.

- The reduction of edible oil imports will also enable the saving of valuable foreign exchange for India.
- The financial outlay will also incentivize farmers to diversify their agricultural activities into oil seed production and this can help increase the income of the farmers in a substantial way.
- The scheme will immensely benefit the oil palm farmers, increase capital investment and also generate new employment opportunities.

Concerns:

- Prior experience of oil palm plantations in countries like Malaysia, Indonesia and Sri Lanka point to the concerns associated with large scale oil palm cultivation and warn against promoting them in the northeastern States and in the Andaman and Nicobar Islands.

Impact on ecology of the region:

- Environmental experts have warned that the adoption of large scale oil palm plantations might lead to the clearance of pristine forest areas in the specified regions. This would lead to widespread destruction of rainforests and native biodiversity. The regions being “biodiversity hotspots and ecologically fragile” makes the proposal all the more worrisome given that the new oil palm plantations could denude forest cover and destroy the habitat of endangered wildlife.
- The palm is an exotic species and it is not a natural forest product of northeastern India and could result in some unforeseen impact on the local biodiversity. Monoculture plantations are not desirable in such areas.
 - * Oil palm has shown signs of becoming an invasive species threatening native plants and animals in countries like Sri Lanka.
 - * Notably the Supreme Court in a 2002 order had directed that existing plantations, whether of oil palm, rubber or teak, should be phased out and the land should be regenerated to its natural profile without any further introduction of exotic species in the Andaman and Nicobar Islands.
- The crop requires high pesticide use in areas where it is not a native crop. This would have a detrimental impact in terms of chemical pollution in the region and could also lead to consumer health concerns.

Unsuitability for small farmers:

- Oil palm has a long gestation period and involves huge investments.
- The high levels of investment and the long

wait for high returns makes oil palm cultivation unviable for small farmers and suitable only for large corporate investors. This does not suit India's unique characteristic of preponderance of small and marginal farmers in the agricultural sector.

- Small cultivators would continue to be dependent on heavy government support.

Impact on tribal land ownership:

- The specified areas being predominantly tribal areas, the promotion of large plantations could impact the community ownership of tribal lands.

Water intensive crop:

- Oil palm is water-guzzling crop. It requires almost 300 litres of water per tree per day.
- Large scale plantations could lead to the fast depletion of water resources in the region.

Possible impact on local economy:

- The replacement of existing rubber, teak and coconut plantations by oil palm plantations had resulted in some economic consequences in Sri Lanka. As compared to oil palm plantations, rubber and coconut plantations offers higher employment generating capacity which becomes critical to the local economy. This gains prominence in the light of reports of a number of rubber farmers in Kerala showing interest in switching to oil palm.

Counter arguments:

Higher productivity of oil palm:

- The land productivity for palm oil is higher than that for oilseeds i.e., the production of palm oil from one hectare is far greater than the production of other oilseeds like groundnut, mustard or sunflower.
- This makes it inevitable to adopt oil palm to fill the huge gap in production versus demand of edible oils.
 - * Palm oil currently makes up about 55% of India's edible oil imports.

No fresh clearance of forest lands:

- Notably of the recommended 28 lakh hectares targeted for oil palm cultivation across the country, only 9 lakh hectares are in the northeastern States. Also the land identified for oil palm plantations in the northeastern States is already cleared for cultivation and thus there would be no new deforestation exercise for the oil palm plantations.

Land availability:

- According to a feasibility report prepared by the Indian Institute of Oil Palm Research (IOPR) for oil palm cultivation in the Andaman and Nicobar Islands, apart from reviving existing oil palm

plantations in the Katchal and Little Andaman Island, new plantations could be planned in the grasslands, which make up more than 75% of the land area of Little Andaman, Katchal, Baratang, Kamorta and Teresa.

- The existing grass in the islands is not of any use and is being burnt every year to avoid snakebites. Thus the oil palm plantations will ensure better usage of the land resources without any adverse ecological impact.
- The soil available in the focus regions is also found to be suitable for oil palm plantation.

Climatic suitability:

- Besides the availability of land in the focus regions, the suitability of climate is a major factor for promotion of oil palm in the northeastern states and Andaman and Nicobar Islands.
- The hot and humid climatic conditions available in these regions makes it an ideal location for palm oil cultivation. The high rainfall in the region will help do away with the need for irrigation which could otherwise suck out valuable groundwater resources.

Adoption of suitable agricultural pattern:

- Given the concerns over unsuitability of oil palm plantations for small scale farmers, the IOPR suggests multi-cropping during the first three years of the oil palm's life cycle which would help provide income before the plantation yields returns from the fourth to seventh years.

Recommendations:

Mitigating environmental and economic consequences:

- While the focus on oil palm cultivation is a welcome move towards ensuring of self reliance of edible oil, there is the need to proceed on the basis of cautious scientific analysis. The concerns over the ecological and economic consequences of oil palm plantations should be appropriately taken care of.

Promotion of other dryland cultivation suitable oilseeds:

- Some experts have also proposed the extension of similar subsidies and support to other oilseeds which are indigenous to India and suited for dryland agriculture like groundnut, sesame and sunflower. This they argue can help India achieve self-reliance without dependence on oil palm.

Additional information:

- The state of Andhra Pradesh currently grows

more than 90% of India's oil palm.

Governmental schemes/Programmes/Initiatives

4. National Monetisation Plan

- » Prelims: National Monetisation Pipeline-Provisions; InvITs and REITS
- » Mains: Significance; Challenges and concerns associated with NMP; Recommendations

Context:

- The Union Minister for Finance and Corporate Affairs recently launched the National Monetisation Pipeline (NMP) for Central ministries and public sector entities.

Details:

- The pipeline has been developed by NITI Aayog, in consultation with infrastructure line ministries, based on the mandate for 'Asset Monetisation' under Union Budget 2021-22.
- * Union Budget 2021-22 had identified monetisation of operating public infrastructure assets as a key means for sustainable infrastructure financing.
- * The NMP is in with the government's strategic divestment policy, under which the state will retain presence in only a few identified sectors with the rest privatized.
- NMP is envisaged to serve as a medium-term roadmap for identifying potential monetisation-ready projects, across various infrastructure sectors including roads, ports, airports, railways, warehousing, gas & product pipeline, power generation and transmission, mining, telecom, stadium, hospitality and housing.
- Under the plan, private firms can invest in projects for a fixed return using the InvIT route as well as operate and develop the assets for a certain period. Some assets such as warehouses and stadiums can also be given on a long-term lease for operations. Thus it will involve participation of the private firms in the infrastructure sector.
- The objective of this initiative is to enable 'Infrastructure Creation through Monetisation'
- The programme will include only brownfield assets which is either languishing or has not been fully monetised. There would be no transfer of ownership or land. The primary ownership of the assets will continue to be with the Government with the framework envisaging hand back of assets to the public authority at the end of transaction life.
- NMP estimates aggregate monetisation potential of Rs 6.0 lakh crores through core assets of the Central Government, over a four-year period, between 2021-22 and 2024-25

- * The top 5 sectors include roads, railways, power, oil & gas pipelines and telecom
- * The central government has set a goal of Rs 88,000 crores to be monetised in 2021-22, adding that each ministry has been given an annual target
- As part of a multi-layer institutional mechanism for overall implementation and monitoring of the Asset Monetization programme, an empowered Core Group of Secretaries on Asset Monetization (CGAM) under the chairmanship of Cabinet Secretary has been constituted.
- Additionally, the Finance Minister has stated that the Centre will incentivise states to undertake disinvestment of PSUs and asset monetisation and outlined a plan. The central government has set aside Rs 5,000 crore to incentive state governments to monetise their assets.
- The government plans to use the Infrastructure Investment Trusts (InvITs) and Real Estate Investment Trusts (REITs) route to monetise public assets under the NMP given the suitability of the InvITs and REITs model.
- * Infrastructure Investment trusts (InvITs) are mutual fund like institutions that enable investments into the infrastructure sector by pooling small sums of money from a multitude of individual and institutional investors for directly investing in infrastructure.
- * InvITs give investors an opportunity to invest in infrastructure assets with predictable cash flows, while the asset owners can raise resources from those assets, which in turn can be deployed in new assets or used to repay debt.

Significance:

Streamline monetization:

- The NMP will help provide a roadmap of the programme for public asset owners; along with visibility on potential assets to private sector. It will help boost investors' confidence by providing sufficient clarity on the number, size and type of assets that would be made available in the market.
- Thus the NMP will help streamline the monetization plans of the government.

Unlock value in idle or under-performing public assets:

- The programme will help unlock value of government investment and public money in infrastructure by tapping institutional and long-term patient capital.
- The programme will help generate greater value for the existing assets and unlock resources for economy.

Alternate funding mechanism:

- Asset monetisation will help tap private sector investment for new infrastructure creation.
- * The estimated value envisaged under NMP corresponds to about 5.4 per cent of the total infrastructure investment envisaged under the NIP which is Rs 111 lakh crore and 14 per cent of the proposed outlay for the Centre (Rs 43 lakh crore).
- NMP will help improve liquidity to increase expenditure in infrastructure by the government.
- Success of the plan could also enable recycling of funds which will be critical for revival of the infrastructure investment in India.
- Along with privatisation of state-run companies the monetization route will allow the government to raise resources even without losing ownership of the assets.

Accelerate infrastructure development:

- The money raised through monetization can be leveraged for further public investments in the infrastructure sector and it will thus accelerate infrastructure development in India.
- The asset monetisation pipeline takes the National Infrastructure Pipeline to the next phase by pitching for higher public-private partnership.

A novel model for infrastructure development in India:

- The NMP is no doubt a step in the right direction given that it offers a good model for infrastructure development in India.
- The government would be better able to tackle the ground-level challenges in building infrastructure like acquisition of land, obtaining of requisite clearances, while the private sector can operate and offer indirect finance to such projects through the NMP.

Benefits of involving the private sector:

- The programme apart from being a viable funding mechanism will also bring in a paradigm shift in infrastructure operations, augmentation and maintenance considering private sector's resource efficiencies and its ability to dynamically adapt to the evolving global and economic reality.
- Thus the Asset Monetisation programme can lead to improved infrastructure quality and operations and maintenance.

Spill-over effects of increased public expenditure in infrastructure:

- The increased infrastructure investment will apart from ensuring access to high-quality and affordable infrastructure to the common

citizen of India will also create employment opportunities and enable high economic growth. This becomes all the more significant in the backdrop of the pandemic.

- Thus the NMP if implemented well could provide a much needed positive trigger for the economic revival.

Challenges and concerns:

Opportunity costs:

- Experts have warned that the expected boost to economic activity due to higher government spending as envisaged under the NMP may need to be weighed against the opportunity costs.
- Notably the money that the government collects by leasing out assets comes from the pockets of the private sector. So higher government spending will come at the cost of lower private spending.

Failure to address structural problems in the sector:

- The NMP also does not address the various structural problems in the Indian economy such as legal uncertainty around such programmes and the absence of a deep bond market that hold back private investment in infrastructure.

Doubts over private sector involvement:

- The success of the NMP will depend on the demand for brown-field government assets among private investors.
- Higher valuations and stringent contract conditions may put off private sector interest in the NMP.

Impact on the end consumers:

- There are concerns that the leasing of public assets like airports, railways, roads and other public utilities to private investors could lead to higher prices for end consumers.
- Also merely ceding control of public utilities to private companies without taking steps to foster greater competition among the bidders will only lead to poor outcomes for consumers.

Scope for political influence:

- The allocation of assets owned by governments to private investors is often subject to political influence, which can give rise to corruption.
- * In the past too, doubts have been raised about the allocation of airports and other assets to certain private business groups.

Recommendations:

- Though the NMP is a step in the right direction, meticulous planning, project packaging, and coordination will be needed to address the underlying structural and legacy issues to help realize the potential benefits of NMP.

Effective implementation:

- The implementation will hold the key in ensuring the success of NMP in boosting economic activity.
- * There should be an open, competitive auction of assets.
- * The assets should be competitively priced to be able to attract private investors.
- * The contract should be clearly defined with enough provisions available for dispute resolution
- * Though the prices of services offered by the private sector would be best determined by market forces, necessary provisions to ensure that the consumers are not exorbitantly charged should be involved in the NMP provisions.

Prescriptions made by NITI Aayog:

- Appropriate policy and regulatory changes to scale up InvITs and REITs need to be focussed upon. This would provide an impetus to expand the investor base of InvITs and REITs.
- Tax-efficient and user-friendly mechanisms like allowing tax benefits in InvITs will help attract investors into these instruments.
- The government should give Income Tax breaks on capital gains to attract retail investors into InvITs And REITs. Though this will entail a cost in the form of loss of revenue for exchequer, the long-term benefits of infrastructure development and economic growth may outweigh the cost.
- Investment instruments like InvITs should be included under the Insolvency and Bankruptcy Code. This will give added comfort to investors planning to invest in InvITs as extending IBC provisions to InvITs would help lenders access a faster and more effective debt restructuring and resolution option.
- * Currently, InvIT structures are not considered a 'legal person' and cannot be brought under IBC proceedings.
- Provisions for robust resolution process would be crucial to ensure retail investor safety in NMP

Governmental schemes/Programmes/initiatives

5. RoDTEP scheme

- » Prelims: RoDTEP scheme- Provisions
- » Mains: Significance and issues associated with RoDTEP scheme

Context:

- The Centre has notified the rates and norms for the Remission of Duties and Taxes on Exported Products (RoDTEP) scheme.

Background:

Remission of Duties and Taxes on Exported Products (RoDTEP) scheme:

- The RoDTEP scheme had kicked in from January 1 2021, replacing the earlier Merchandise and Services Export Incentive Schemes (MEIS and SEIS) that were in violation of WTO norms.
- Based on the globally accepted principle that taxes and duties should not be exported, and taxes and levies borne on the exported products should be either exempted or remitted to exporters, the RoDTEP scheme aims at zero rating of exports.
- The scheme will ensure that the exporters receive the refunds on the embedded taxes and duties previously non-recoverable.

Details:

Rates:

- The rebates under RoDTEP range from 0.5% to 4.3% of the Free On Board value of outbound consignments.
- * While the lowest rate is offered on items like chocolates, toffees and sugar confectionary, yarns and fibres have been granted the highest rate.
- Steel, pharma and chemicals have not been included under the scheme.

Norms:

- To enable zero rating of exports, all taxes, including those levied by States and even Gram Panchayats, will be refunded under the scheme.
- The RoDTEP scheme would be valid till March 31, 2024.

Significance:

Increase competitiveness of Indian products:

- The rebate will allow the exporters to price their products at a lower level. This will help make Indian products price competitive in the international market.

Boost to exports:

- This would incentivize people to undertake exports of notified goods. This will give not only give an impetus to India's foreign exports and its balance of payments position but would also augur well for India's economic growth.

Boost to specified sectors:

- The scheme would put direct cash in the pockets of exporters and this could be used to further increase production or productivity.

Issues:

- Some sectors are concerned about the rates being lower than expected.
- Engineering firms are concerned about the taxes on key raw materials not being adequately offset.

Indian Economy and Infrastructure - Power sector

6. Revisit the idea of 'aging out' India's coal plants

- » Prelims: India's INDC
- » Mains: Arguments both in favour of and against the shutting down old coal power plants

Context:

- In the light of the growing calls for shutting down of old coal power plants in India, even in the current central government the article analyzes the arguments both in favour of and against this proposal.

Arguments in favour of shutting down old coal power plants:

Environmental benefits:

- The old coal power plants are major contributors to Green House Gas emissions. The shutting down of these plants will thus aid the achievement of India's Nationally Determined Contributions.
- * India aims to reduce the emissions intensity of its GDP by 33 to 35 per cent by 2030 from 2005 level.
- * India also aims to achieve about 40 per cent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030.

Economic benefits:

- The replacement of older power plants with newer and more efficient coal based power plants would lead to improved efficiencies, reduced coal usage, and hence, cost savings.
- Also several studies have indicated that it would be uneconomical for old plants to install pollution control equipment required to meet the emission standards announced by the Environment Ministry. It would be more financially viable to close such plants.

Arguments against shutting down of old coal power plants:

Other factors contributing to the cost of power produced:

- It is worth noting that given the large forward and backward linkages to power generation in coal based power plants, higher efficiency does not naturally translate to savings.

- For example: given that the older plants are likely to be located closer to the coal source, reducing coal transport costs, they enjoy locational advantage. Some of these older plants generate power at lower costs compared to the national average.

Negligible savings:

- As per the analysis conducted by the authors of this article, the total savings from shutting down plants older than 25 years would be negligible and inadequate to even pay for the fixed costs (such as debt repayment) that would have to be paid if the plants are prematurely retired.
- Also the savings in coal consumption by replacing older plants with newer ones will likely be only in the 1%-2% range.

Necessary complement for renewable energy:

- There has been the growing share of renewable energy mix in the Indian power sector. To support the intermittent renewable energy generation, there is the need for capacity that can provide flexibility, balancing, and ancillary services. Old thermal capacity, with lower fixed costs, can play this role until affordable and affordable storage technologies develop.
- The old coal based plants could be used to meet instantaneous peak load as well meet load when renewable energy is unavailable.

Risks with retirement:

- Coal power plants older than 25 years make up around 20% of the total installed thermal capacity in India and hence play a significant role in the country's power supply.
- Aggressive early retirement of coal-based capacity could result in real or perceived electricity shortage in some States and may lead to new investments in coal-based base-load capacity by State-owned entities. This would be unwelcome given that already the planned thermal capacity is in excess of what the country needs. Further addition of thermal power capacity will lead to stranded assets and locked-in resources issues.

Recommendations:

- Based on the above arguments, it is prudent that age should not be the only criterion to close coal based power plants. There is the need for a more detailed analysis, considering the various technical, economic and operating characteristics of individual plants and units.

Index

7. Financial inclusion index

- » Prelims: Financial Inclusion Index- Parameters

- » Mains: Significance and challenges associated with ensuring financial inclusion

Context:

- The Reserve Bank of India (RBI) has recently announced the formation of a composite Financial Inclusion Index (FI-Index).

Financial Inclusion Index (FI-Index):

- The composite Financial Inclusion Index (FI-Index) would help capture the extent of financial inclusion across the country.
- The FI-Index has been conceptualised as a comprehensive index incorporating details of banking, investments, insurance, postal as well as the pension sector in consultation with Government and respective sectoral regulators.
- The FI-Index will be published annually in July every year.
- The index captures information on various aspects of financial inclusion in a single value ranging between 0 and 100, where 0 represents complete financial exclusion and 100 indicates full financial inclusion.
- The FI-Index comprises of three broad parameters viz., Access (35%), Usage (45%), and Quality (20%). The Index is responsive to ease of access, availability and usage of services, and quality of services, comprising in all 97 indicators.
 - * A unique feature of the Index is the Quality parameter which captures the quality aspect of financial inclusion as reflected by financial literacy, consumer protection, and inequalities and deficiencies in services.
- The FI-Index has been constructed without any 'base year' and as such it reflects cumulative efforts of all stakeholders over the years towards financial inclusion.
- The annual FI-Index for the period ending March 2021 is 53.9 as against 43.4 for the period ending March 2017.

Indian Economy and Infrastructure

8. Draft Electricity (Amendment) Bill, 2021

- » Prelims: UDAY scheme; electricity subject in concurrent list of the Indian Constitution
- » Mains: Bad state of the Discoms; Major provisions of the new amendment bill; arguments both in favour of and against the new amendments

Background:

Bad state of the Discoms:

- Electricity distribution has remained the sore point in the country's power network.

- The distribution companies (discoms) which by and large come under the control of the States, have been plagued by a variety of issues.
- * Thirty-six out of 56 discoms have reported aggregate losses of around Rs. 32,900 crore as on March 31, 2020. They owe over Rs. 90,000 crore to power producers at the end of June 2021.
- * Discoms continue to be saddled with structural challenges in governance and regulation.
 - ◊ The Regulatory Commissions in many states have not been able to function with the desired speed or efficiency.
- * They face the problems of underinvestment, line losses and issues in billing, metering, and collection which seems to be acting as a body blow to their financial viability.
 - ◊ Aggregate Technical & Commercial (AT&C) losses lies in the range of around 20%.
- The government has tried several times to make discoms financially viable through schemes like UDAY, but their efforts have not met with the desired success.

Major provisions of the amendment bill:

- The broad objectives of the legislation are to ensure consumer-centricity, promote ease of doing business, enhance sustainability of the power sector and promote green power.
- One of the main provisions includes the move to de-license power distribution and allow for greater private sector participation in the electricity distribution sector. This will let consumers choose a distribution company in their area. It also proposes a role for distribution sub-licensees with regulators' nod.
- There is the provision of a universal service obligation fund, which shall be managed by a government company. This fund shall be utilised to meet any deficits in cross-subsidy.
- The draft bill proposes direct benefit transfer (DBT) of subsidies, reduction of cross subsidies, and the establishment of the electricity contract enforcement authority.
- It provides that the Commissions shall determine tariffs that are reflective of cost so as to enable Discoms to recover their costs.
- There will also be a penalty for not meeting renewable energy (RE) purchase obligations that require power distribution companies to buy a fixed amount of RE and reduce their reliance on fossil fuels. The responsibility of fixing renewable power obligation (RPO) is shifted from state commissions to the central government.

- The other major changes that the Bill is expected to bring about include the appointment of a member with legal background in every electricity regulatory commission, and the strengthening of the Appellate Tribunal for Electricity.

Arguments in favour:

Increased competition and associated benefits:

- The de-licensing provision will help end the monopoly of state-run distribution companies and overcome their financial non viability. By incentivizing greater private participation in the distribution sector it will help increase competition and thus aid in unleashing of next-generation power sector reforms in India.
- It will have a positive bearing on distribution efficiency and help reduce tariffs. The anticipated technological upgrades including smart metering and infrastructure advancements that is expected through greater private participation will help reduce the huge AT&C losses.
- Increased competition will not only empower customers but also help bring huge investments into the sector and accelerate technology adoption.

Impact on Renewable energy sector:

- The reforms will especially make the RE generation, transmission and distribution financially more attractive to investors.
- The provision regarding renewable energy (RE) purchase obligations will help India meet its RE and global climate commitments.

Reduce subsidy foregone:

- The introduction of Direct Benefit Transfer (DBT) of power subsidies will ensure greater transparency and accountability and ensure that the subsidy reaches people who are entitled to it, as we have seen in the case of LPG.
- This will help cut down on subsidy to the electricity sector and help ensure a better cost-reflective tariff.

Robust regulatory regime

- The strengthening of electricity regulatory commission and the Appellate Tribunal for Electricity will ensure faster resolution of long-pending issues and reduce the legal hassles for all stakeholders.

Arguments against

- Opposition parties and several organisations have objected to certain features in the draft Electricity (Amendment) Bill, 2021.

- * The proposed de-licensing of distribution has been opposed by some state governments. They fear that a greater role for private distribution companies and franchisees would only lead to "cherry-picking of remunerative areas" by these companies, leaving it to the State discoms to serve social sector obligations and rural areas. This would only push the State discoms to incur more massive losses.
- * Some states have opposed the proposed amendment on the grounds that it goes against the federal structure of the Constitution as electricity is in the concurrent list.
- * Those opposing the Bill contend that it will lead to more private players in the power sector, making electricity unaffordable for vulnerable sections. A greater stake for private sector could lead to a scenario where the new private service providers could undertake unreasonable tariff hikes for profiteering.
- * There is also the fear that the proposed DBT will do away with the heavily subsidised or free power supply to the farm sector.
- * Other specific complaint from the state includes the one from the state of Tamil Nadu, which argues that hydro-power purchase obligation cannot be fixed separately as hydro-power generation is seasonal, monsoon-dependent and not in the control of its discom.

Conclusion:

- The proposed amendment can be a game-changer for the power sector provided its lacunae are covered for and it is implemented as envisaged.

Indian Economy and issues relating to growth and development

9. The Indian economy is struggling to recover

- » Prelims: World Economic Outlook
- » Mains: Challenges associated with India's economic recovery in the post pandemic phase

Background:

- The International Monetary Fund (IMF)'s latest update of the World Economic Outlook report though projected a global economic expansion of around 6%, it had warned of a widening variance in the global recovery process in the aftermath of the pandemic.
- * While the forecast for advanced economies has been revised upwards, prospects for emerging and developing economies, particularly those in Asia are projected to experience slower recoveries.

- The primary reason for this divergence seems to be the difference in vaccine access and the pace of vaccination coverage and the ability of the countries to provide for additional fiscal support.
- * There has been a huge difference in the pace of vaccine roll-out between the advanced and the emerging and low-income countries. According to the IMF estimates, overall, over 40% of the population in advanced economies have been fully vaccinated as compared with just 11% in emerging market economies.
- * The advanced economies have been able to use their vastly superior fiscal situation to implement significantly bigger stimulus packages. This has helped prop up consumer demand and hence support domestic industry and growth.

Concerns for India:

Economic contraction:

- The Indian economy has exhibited one of the poorest performances among the emerging market economies.
- * After the first COVID-19 wave, Indian economy contracted by over 7% during 2020-21.

Slow recovery:

- The economic recovery has been slow in India partly attributable to the second wave of the pandemic.
- The recovery process has been also skewed and India has been experiencing what is commonly referred to as a K-shaped economic recovery process. This does not augur well for long term sustainable economic growth prospects of India.

Inflation:

- Retail inflation had crossed 6% and continues to remain high leading to price pressures on the economic recovery process. It has also raised fears of stagflation in the Indian economy.
- The high inflation will only further exacerbate the difficulties being faced by the poor.

Limited resources with government for public expenditure:

- Given the slowdown in revenue inflow to the government, the government too had cut back public spending.
- Given the large role that public expenditure plays in India's economy, this does not augur well for the growth prospects of Indian economy.

Limited fiscal stimulus in India:

- Unlike other economies India's actual fiscal stimulus has been very limited as compared to its GDP. Also most of the measures are in the form of easy credit facilities to affected sectors of the

economy. It does not adequately address the depressed consumer demand in the economy, which is so very important for a economic recovery.

Depressed consumer demand:

- Consumer spending has also been extremely sluggish and shows no signs of picking up. This has dampened business confidence and the entrepreneurs are wary of making new investments.

Uncertainty regarding the pandemic:

- Given the predictions of the onset of a third wave of COVID-19, new mutant variants and the reports of break through infections even in fully vaccinated individuals have added to the uncertainty surrounding the pandemic.

Poor rate of vaccination in India:

- There has been very poor spread of vaccination in the country. It is unlikely that the Central government will be able to achieve its target of vaccinating all adults by the end of the year.

Conclusion:

- Based on the above discussed aspects it looks most likely that the Indian economic recovery will only take more time to fructify.

Indian Economy and issues relating to growth and development

10. Export Sector

- » Prelims: Export targets set by the government
- » Mains: Service exports from India; Measures being taken to promote exports from India

Export Targets:

- Buoyed by record merchandise exports in the first quarter of the current fiscal year, the government has set a target of \$400 billion merchandise exports in FY22, with specific targets set for sectors and countries.
 - * Notably however, India was a net importer in June 2021 with a trade deficit of \$9.4 billion.
- Subsequently the government also aims to reach a merchandise exports target of \$500 billion for FY23 and \$1 trillion in 2027-28.
- The government is aiming to target \$2 trillion exports by 2030, with \$1 trillion from merchandise exports and \$1 trillion from services exports..

Service exports:

- Services exports from India, which were \$17 billion in 2010-12, jumped to \$205 billion in 2020-21.
- India has been progressing rapidly in service sectors such as healthcare, home delivery, telecom and technology.
- India is rapidly progressing to become one of the world's largest digital markets, be it fintech, edutech or telemedicine.

Measures being taken to boost foreign trade:

- The government is planning a number of initiatives to boost India's position in the foreign trade sector.

Special Economic Zones:

- The government proposes to operationalize a simpler regulatory regime for Special Economic Zones (SEZs) in India.
 - * SEZs account for about 30% of India's exports.
- The government would denotify idle land and unused built-up area inside SEZs for other economic activity. This land could be used for other industrial purposes.

Import monitoring cell:

- An import monitoring cell has been set up to track any sudden increase in an item's import and flag it to the concerned ministries.
- These items would be prioritized for manufacturing within India.

Restructuring of Directorate General of Foreign Trade:

- The Directorate General of Foreign Trade would be restructured to make it a trade promotion organisation rather than being only an incentive-distribution organization.
 - * Directorate General of Foreign Trade (DGFT), formerly known as the Chief Controller of Imports and Exports (CCI&E), is India's official administering body for imports and exports. It is an attached office of the Ministry of Commerce and Industry.
 - * DGFT is accountable for implementing the Foreign Trade Policy, with the primary objective of promoting the Nation's exports.

Export incentives:

- The government will remit about Rs. 50,000 crore of pending export benefits over a two-year period.
- The government would also be soon notifying the RoDTEP (Remission of Duties and Taxes on Export Products) rates.

Indian Economy-Agriculture

11. Sugar export from India

- » Mains: Positive impact of sugar exports from India; Potential of agricultural exports from India

Context:

- Record sugar exports from India.

Governmental measures to enhance sugar exports:

- The Union government had set an export target of 60 lakh tonnes of sugar for the current year.
- The Union government also provides assistance to the tune of ₹6,000 per tonne to facilitate sugar exports.

Record sugar exports from India:

- Sugar mills have surpassed their 60 lakh tonne export target.
- Sugar exports have increased more than 10 times compared to 2017-18.
- Forward contracts of about 70 lakh tonnes have been signed for sugar exports.

Positive impact of high volume of sugar exports:

- The allowing of exports has let the sugar mills realize better price discovery in the international markets. The export revenue has allowed mills to partially pay off their dues to cane farmers and reduce arrears to less than Rs. 9,000 crore.
- * Given the sugar surplus status of India, the sugar mills experience very low prices in the domestic markets. This in turn has an adverse impact on their revenues and their ability to pay the sugarcane farmers.
- * Pending payments to sugarcane farmers from sugarcane mills remain a thorny issue in several States, provoking protests in Uttar Pradesh, Punjab and Maharashtra- the major sugarcane growing states in India.

Additional information:

- Along with encouraging exports, the government has also been encouraging diversion of sugarcane for ethanol production, which the government sees as a more permanent solution to the problem of surplus stocks in India.

Issues related to Direct and Indirect Farm Subsidies and Minimum Support Prices

12. Centre raises fair price of sugar cane

- » Prelims: FRP for sugarcane; CACP; SAP; Recovery rate

Context:

- The Union government has raised the fair and remunerative price (FRP) for sugarcane.

Background:

Fair and remunerative price (FRP):

- While the Centre fixes the Minimum Support Price (MSP) for a bunch of crops, sugarcane farmers are assured what is known as the Fair and Remunerative Price (FRP).
- Fair and remunerative price (FRP) is the minimum price at which rate sugarcane is to be purchased by sugar mills from farmers.
- The FRP is based on the recommendation of the Commission of Agricultural Costs & Prices (CACP) and approved by the Cabinet Committee on Economic Affairs, chaired by the Prime Minister. The FRP ensures a guaranteed price to cane growers.
- Most major sugar-producing States set their own cane prices over and above the national FRP and is referred to as the State Advised Prices (SAP)

Details:

- The Cabinet Committee on Economic Affairs has approved Fair and Remunerative Price (FRP) of sugarcane for sugar season 2021-22 (October - September) at Rs 290 per quintal for a basic recovery rate of 10 per cent. This marks an increase by Rs. 5 a quintal.
- * "Recovery rate" is the amount of sugar that is produced from a fixed input of raw sugarcane.
- * The government rewards recovery above 10 per cent with a premium and anything below 10 per cent with a reduction in FRP.
- The decision will benefit around five crore sugar cane farmers and their dependents.
- Despite demands from sugar mills, however, the Centre refused to hike the price at which they can sell the processed sugar.
- * While the price of sugar is market driven and depends on demand and supply, the concept of Minimum Selling Price (MSP) of sugar has been introduced with a view to protect the interests of farmers and ensure that the sugar industry may get at least the minimum cost of production of sugar, so as to enable them to clear cane price dues of farmers.
- The government's line of argument has been that any hike in the selling price of sugar would adversely impact the consumer interests and also that the government has been offering ample support to sugar mills for sugar exports and diversion of surplus sugar to ethanol production to ensure financial viability of the sugar mills.

Governmental schemes/Programmes/Initiatives

13. e-RUPI

- » Prelims: e-RUPI
- » Mains: Significance and challenges associated with e-RUPI initiative

Context:

- PM launched digital payment solution e-RUPI.

What is e-RUPI?

- E-RUPI is a cashless and contactless digital payments medium, which will be delivered to mobile phones of beneficiaries in the form of an SMS-string or a QR code.
- It has been developed by the National Payments Corporation of India (NPCI), the Department of Financial Services, the Ministry of Health and Family Welfare, and the National Health Authority.

How does e-RUPI work?

- This people-specific and purpose-specific payments system will essentially function like a prepaid gift-voucher that will be redeemable at specific accepting centres without any credit or debit card, a mobile app or internet banking.
- The beneficiary of the service will receive the QR code or the SMS string on his/her phone. The person should show this code or string at the service provider (like a hospital or PHC) where it will be scanned by the merchant.
- Then, a verification code will be sent to the beneficiary's phone which would have to be shared with the merchant, and the payment would be successful.

How are the e-RUPI vouchers issued?

- The e-RUPI system has been developed by the NPCI on its UPI platform and has onboarded banks that will be the issuing entities.
- Government agencies/corporations will approach the partner banks and give them the details regarding the beneficiaries and the purposes for which payments will have to be made.
- Beneficiaries are identified using their mobile numbers. The voucher is allocated to the service provider (merchant) in the name of the beneficiary and only this would be delivered to the intended beneficiary.
- Some of the partner banks are ICICI Bank, SBI, Axis Bank, HDFC Bank, Bank of Baroda, Punjab National Bank, Indus Ind Bank and Canara Bank.

Significance:

- The e-RUPI platform can be scaled to work as a new digital payment system, which could

be used to send the government's monetary benefits directly to beneficiaries' mobile phones. This can help ensure government benefits and services reach their intended beneficiaries in a timely and 'leak-proof' manner. Thus the platform can help plug holes in the existing government welfare payment disbursement system.

- The digital system will also help to track and trace how the subsidies and benefits given to citizens are used. This will provide valuable inputs to evidence based policy making in the administration.
- The e-RUPI will also allow the government agencies to keep track of how much of the allocated funds have been disbursed to citizens. This will bring in a sense of transparency and accountability in the welfare administration and also help the government revert back the unused funds. This will help stop misuse of funds.
- e-RUPI has a significant potential to support small businesses in taking direct benefit from a multitude of governments schemes as well.
- It will foster financial inclusion in the country. It will also ensure that government services reach the list mile beneficiaries without leakage of benefits/funds and in a transparent manner.
- e-RUPI is easy, safe and secure as it keeps the details of the beneficiaries completely confidential.

Challenges:

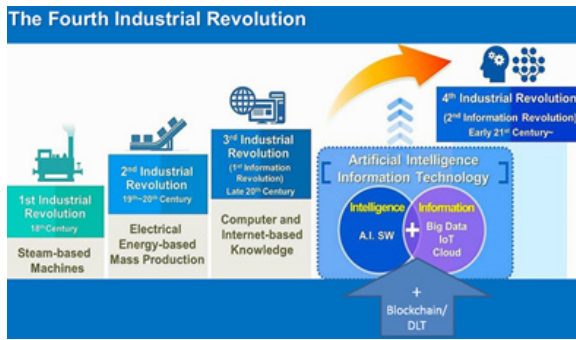
- Mobile is an essential device to access the e-RUPI vouchers. The lack of universal mobile ownership and the gender gap in it would be a major challenge in implementation of the e-RUPI.
 - * As per available estimates, India's smart phone penetration rate is 42% in the financial year 2020 and it could reach 51% only by 2025.
 - * A 2018 research by Harvard University notes a 33-percentage point gender gap in mobile phone ownership in India.
 - * Also the rural areas have lower mobile ownership as compared to urban areas. The poor families have very limited mobile ownership.

Indian Economy and issues relating to growth and development

14. Industry 4.0 framework for MSMEs

- » Prelims: Fourth Industrial Revolution
- » Mains: Potential of Industry 4.0 for MSMEs; challenges

Background:



What is Industry 4.0?

- The term 'Industry 4.0' was coined by the German government in 2011.
- * The governments of other countries also coined their own industrial initiatives like Industry 4.0. For example, the U.S. calls it Smart Manufacturing, China calls it Made in China 2025, and India refers to it as Make in India or Digital India
- Industry 4.0 or the Fourth Industrial Revolution (4IR) is the ongoing automation of traditional manufacturing and industrial practices, using modern smart technology.

Significance:

- With the technologies such as Additive manufacturing, Internet of Things, Cyber Physical Systems, Augmented Reality/Virtual Reality and data, the manufacturing industry will be able to make data-driven decisions.
- The reduced costs of electronics like sensors, transmitters, and cloud have paved way for the capture the data produced during operational activities.
- With the availability of advanced algorithms, the data captured can be analysed for making real-time decision-making.
- Thus, Industry 4.0 has integrated 'data' with manufacturing and Information Technology.

The potential of MSMEs:

- Micro, Small and Medium Enterprises (MSMEs) are expected to become the backbone of India as the economy grows larger.
- MSMEs form more than 95% of the industries in India.
- They produce more than 45% of the total manufacturing output and employ more than 40% of the workforce.
- According to the Economic Survey 2020-21, over 6 crore MSMEs employ more than 11 crore people and contribute roughly 30% to the GDP and half of the country's export.

- MSMEs are also ancillaries to larger enterprises, leading to a seamless supply chain integration.
- As a result, making MSMEs more efficient will be advantageous for the whole economy.

Challenges faced by MSMEs w.r.t Industry 4.0:

Adoption:

- MSMEs face challenges in adopting new technologies of Industry 4.0.

Awareness:

- They lack awareness regarding Industry 4.0 and its benefits.
- While Industry 4.0 believes in improving the existing system, MSMEs consider such technologies to be disruptive.

Finances:

- MSMEs will need to make major financial investments to adopt Industry 4.0.
- Investing in the right set of technologies will also need experts and consultants.

Lack of framework:

- The frameworks and steps that can assist MSMEs in adopting Industry 4.0 technologies have been missing.

Way Forward:

- For any new technology to be adopted, an organisation requires a positive organisational culture and the support of people.
- MSMEs need to believe in the advantages that Industry 4.0 technologies can offer.
- MSMEs need to understand the data they are producing from all their operational activities. Based on such data, their readiness to adopt 4IR technologies can be evaluated.
- MSMEs should develop their own vision of Industry 4.0 technologies that they want to adopt and identify the relevant tools and practices they need for such a tailored vision.
- Proper sensitisation of the Government of India, higher education institutions, practitioners, entrepreneurs, industrial associations, trade unions, venture capitalists, consultants and research agencies would help to speed up this task.

Conclusion:

- Though adoption of Industry 4.0 technologies by MSMEs requires them to address a bunch of challenges, it will make them more competitive and prepare them to offer world-class quality products to customers.
- With India having joined the group of top 50 countries in the global innovation index for the

first time in 2020, the time is ripe for the MSMEs to embrace Industry 4.0 technologies without any hesitation.

Legislations in news

15. LS passes Bill to amend insurance Act

- » Mains: Major provisions of the bill; significance and concerns

Context:

- Lok Sabha passed the General Insurance Business (Nationalisation) Amendment Bill, 2021.
- * The Bill seeks to amend the General Insurance Business (Nationalisation) Act, 1972.

Background:

- The 1972 Act set up the General Insurance Corporation of India (GIC).
 - * The Act defined general insurance business as fire, marine or miscellaneous insurance business.
 - * It excluded capital redemption and annuity certain business from the definition.
- The businesses of the companies nationalised under the Act were restructured in four subsidiary companies of GIC: National Insurance Co. Ltd, New India Assurance Co. Ltd, Oriental Insurance Co. Ltd and United India Insurance Co. Ltd.

Provisions of the Bill:

- The bill will allow the government to bring down its stake in State-owned general insurance companies, generate required resources and help public sector general insurers design innovative products.
- It allows the government to privatize state-run general insurance companies.
- It seeks to remove the mandatory requirement of the Central government holding not less than 51% of the equity capital in a specified insurer.
- It also provides for cessation of application of the existing general insurance law to those insurers in which the government ceases to have control.
 - * Control refers to the government's right to appoint majority of directors or to have the power to influence management or policy decisions.
- It increases the liability of a director, who may not be a whole-time director, in case the insurance firm of commits certain acts of omission which he was aware of or party to.

- It seeks to include capital redemption and annuity certain within general insurance business.

Significance:

- It seeks to bring in more private capital in the general insurance business and improve its reach to make more products available to customers
- The move is part of the government's strategy to open up more sectors to private participation and improve efficiency.
- It will provide for greater private participation in the public sector insurance companies, to enhance insurance penetration and social protection, to better secure the interests of policyholders and contribute to faster growth of the economy.

Concerns:

- The privatisation of United India Insurance will cause major disruption and destabilise the future of almost two crore retail insurers
- The privatisation will initiate financial problems while undermining the confidence of the common retail insurers of the poorer sections of the society.

Note:

- The government is yet to announce the name of the insurer it seeks to privatize.
- The government has set a ₹1.75 trillion disinvestment target for this fiscal.

Inclusive Growth and issues arising from it

16. Handloom exports

- » Mains: Significance of Handloom exports; Measures being taken to promote handloom exports

Context:

- Speaking at the National Handloom Day programme, Union Minister of Textiles, Commerce and Industry has called to increase handloom exports from Rs. 2,500 crore a year to Rs. 10,000 crore in the next three years.

Significance of Handloom sector

- The Handloom sector plays a very important role in the country's economy. It is an employment intensive sector. It is one of the largest economic activities providing direct employment to over 65 lakhs persons engaged in weaving and allied activities.
- This sector contributes nearly 19% of the total cloth produced in the country and also adds substantially to export earnings.
 - * The Indian cotton handloom fabrics and

made-ups occupy a place of eminence in the markets of USA, UK, Germany, France, Sweden, Belgium, the Netherlands, Japan and Australia. The main items exported belong to the segment of home furnishing, which constitutes about 90% of our total handloom exports.

- Handloom is unparalleled in its flexibility and versatility, permitting experimentation and encouraging innovations. The strength of Handloom lies in the introducing innovative designs, which cannot be replicated by the Power loom sector.
- Handloom forms a part of the heritage of India and exemplifies the richness and diversity of our country and the artistry of the weavers.

Steps proposed:

- A committee consisting of all relevant stakeholders like weavers, trainers, equipment makers, and marketing experts should be formed to recommend ways to achieve the target set for handloom exports.
- Measures should be taken to increase the production capacities of handloom sector from the current Rs. 60,000 crore to over Rs. 1.25 lakh crore to increase exports.
- An e-commerce portal will help the handloom weavers and handicraft artisans sell their products directly. This will not only help the artisans realize better prices for their products but will also help increase their market reach both within India as well as other countries.
- The Design Resource Centre in Tamil Nadu can provide design inputs to promote export of handloom products by facilitating product diversification and adaptation to meet modern market requirements.

Indian Economy and issues relating to growth and development

17. Improving the prospects of Indian domestic industries

- » Mains: Measures to be taken to improve the prospects of Indian domestic industries

Context:

- Annual session of the Confederation of Indian Industries (CII).

Major deliberations during the session:

- The session attended by major industrialists of India and the Indian prime Minister, many suggestions were made for further improving the prospects of the Indian domestic industries.
- * India should focus on indigenous research,

innovation and IPR (intellectual property rights). There is the need to step up investments, especially in research and development to ensure India's self-reliance in critical sectors.

- * India should prioritize working towards enhancing technological capabilities in areas such as electronics and 5G, developing a skill ecosystem for these sectors and creating protocols and partnerships with countries for cooperation in technology.
- * India should focus on augmenting its design and innovation capability given its vast scope and potential.
- * India should work towards establishing end-to-end value chains within India, given that such an approach will not only bring additional income but also shield from any potential value chain disruption and ensure a more secure production chain for India.
- * The government should facilitate measures to help reduce cost of doing business. This will ensure higher productivity among Indian industries and will render such products price competitive in the international markets.
- * Only a robust financial sector could support a robust economy and in this direction it is necessary to take appropriate measures to help the ailing financial sector in India.

Indian Economy and issues relating to growth and development-Social security

18. Improving social security for workers

- » Mains: Impact of the pandemic on working population; Measures to be taken to improve their status

Context:

- Parliamentary Standing Committee on Labour's report on the impact of the pandemic on rising unemployment.

Impact of the pandemic:

- The COVID-19 crisis in India had come in the backdrop of pre-existing high and rising unemployment.
- The report notes the devastating impact of the pandemic on the labour market.
- * The PLFS quarterly bulletin for April-June 2020 showed the unemployment rate in urban areas for those above 15 years at 20.8%, an increase from 9.1% in January-March 2020.
- This would have led to job losses and significant income losses particularly in the informal sector threatening the survival of millions of workers and their families.

- * As per the Periodic Labour Force Survey (PLFS), 90% of workers were in the informal sector, which is 419 million of the 465 million workers.
- The report has noted that the pandemic has made matters worse for women, the young, self-employed, migrants and worker with low and medium skills.

Recommendations:

- Income support to the poor to compensate for loss of jobs/employment through direct transfer of money into their bank accounts.
- Budgetary allocation for MGNREGA should be increased.
- Urban employment guarantee scheme on the lines of the MGNREGA should be implemented.
- Strengthening of social security measures for workers
 - * Universal healthcare should be made a legal obligation
- Developing a national database of unorganised workers.

Economic terminologies

19. Anti-dumping duty

- » Prelims: Anti-dumping duty; Viscose staple fibers

Anti-dumping duty:

- An anti-dumping duty is tariff imposed by domestic government on foreign imports that it believes are priced below fair market value.
- Dumping is a process wherein a company exports a product at a price that is significantly lower than the price it normally charges in its home (or its domestic) market.
- The aim of the anti-dumping duty is to protect the domestic businesses and the local economy.

Context:

- The Directorate General of Trade Remedies (DGTR) has suggested the withdrawal of anti-dumping levy on viscose staple fibre originating in or exported from Indonesia or China and imported by India.
- * Viscose staple fibers (VSF) or artificial cotton fibers are natural and biodegradable. These fibers are obtained from wood pulp and cotton pulp.

Indian Economy and issues relating to growth and development

20. Digital sector in India

- » Mains: Significance of digital sector in Indian economy

Context:

- NASSCOM's unveiled its report titled "Digital India: The Platformisation Play" at the NASSCOM Cloud Summit
- * NASSCOM is a not-for-profit industry association and the premier trade body and chamber of commerce of the Tech industry in India and comprises over 3000 member companies including both Indian and multinational organisations that have a presence in India.

Major aspects of the report:

- The report notes major growth potential in the digital sector and estimates that open digital ecosystems could help unlock more than \$700 billion worth of business opportunities for India by 2030 across sectors such as healthcare, agriculture, MSMEs, education, and e-land records.
- The report commends the performance of Indian digital platforms like Aadhaar, UPI, and CoWIN (three of the largest public digital platforms in the world) and notes how they have helped fast-track India's pivot to digitalisation.

Significance of the digital sector:

- Provisions for e- services can help make government services available to people in a more efficient and convenient manner. It can also bring in a higher degree of transparency and accountability in government's functioning.
- Digital sector can help better integrate the various sectors of the government and break the silos in government departments. This could give effect to better synergy, efficiency and effectiveness.
- Given the economic potential of the sector, the digital sector is integral to India's \$5-trillion dollar economy aspiration.
- Digital education and health services with their ease in access and affordability can also help in bringing out more inclusive development.
- Large scale adoption of the digital ecosystem will help organise available data with the help of evolving technology big data and data mining, AI. This data can help create tremendous value for all stakeholders and also help in evidence based policy making.

Economic Index

21. Global Manufacturing Risk Index

- » Prelims: Global Manufacturing Risk Index-Parameters and India's ranking

- Global Manufacturing Risk Index, 2021 brought out by real estate consultant Cushman & Wakefield has ranked India as the second-most sought-after manufacturing destination globally.
- * The first spot is occupied by China.
- The index assessed the most advantageous locations for manufacturing among 47 countries.
- The rankings are determined based on four parameters: the country's capability to restart manufacturing, business environment, operating costs, and the risks.
- * Operating cost competitiveness has been India's biggest strength in the assessment.

Governmental schemes/Programmes/Initiatives

22. National Industrial Corridor Programme

- » Prelims: National Industrial corridor Programme- Aims and provisions
- » Mains: Significance of the initiative

Context:

- 11 Industrial Corridors with 32 Projects to be developed in 4 phases in the country as part of National Industrial Corridor Programme (NICP).

About the National Industrial Corridor Programme (NICP):

- The National Industrial Corridor Programme (NICP) has been conceived to promote world class manufacturing facilities and develop futuristic industrial cities in India.
- It is under the Department for Promotion of Industry and Internal Trade (DPIIT).
- The broad objective of NICP is to provide plug and play infrastructural facilities for setting up large scale manufacturing units.
- The National Industrial Corridor Development and Implementation Trust (NICDIT) under the DPIIT is the overarching institutional framework to implement the programme.
- Under the programme, land parcels are developed for immediate allotment to manufacturing units.
- The programme aims to develop new industrial cities as "Smart Cities" and converge next generation technologies across infrastructure sectors.
- The 11 Industrial Corridors being developed are:
 - * Delhi Mumbai Industrial Corridor (DMIC)
 - * Chennai Bengaluru Industrial Corridor (CBIC)
 - * Amritsar Kolkata Industrial Corridor (AKIC)
 - * East Coast Industrial Corridor (ECIC) with Vizag

Chennai Industrial Corridor (VCIC) as Phase 1

- * Bengaluru Mumbai Industrial Corridor (BMIC)
- * Extension of CBIC to Kochi via Coimbatore
- * Hyderabad Nagpur Industrial Corridor (HNIC)
- * Hyderabad Warangal Industrial Corridor (HWIC)
- * Hyderabad Bengaluru Industrial Corridor (HBIC)
- * Odisha Economic Corridor (OEC)
- * Delhi Nagpur Industrial Corridor (DNIC)

Significance:

- Industrial corridors are conceived to foster global manufacturing, investment destination hubs and smart cities with the best in-class infrastructure.
- They have the potential to unleash the manufacturing potential in the country and raise its contribution to GDP by creating quality infrastructure ahead of demand.

Governmental schemes/Programmes/Initiatives

23. SAMRIDH Scheme

- » Prelims: SAMRIDH scheme

Context:

- The "Start-up Accelerators of MeitY for pRодукt Innovation, Development and growth (SAMRIDH)" programme was launched recently.

Details

- The program aims to create a conducive platform to Indian Software Product start-ups to enhance their products and secure investments for scaling their
- The programme is being implemented by MeitY Start-up Hub (MSH).
- Not only will the program provide funding support to the start-ups, but it will also help in bringing skill sets together which will help them to become successful.
- The government will support start-ups and entrepreneurs in the most challenging phase which is the initial risk phase.
- The scheme will focus on accelerating 300 start-ups by providing customer connect, investor connect, and international immersion in the next three years.
- Also, an investment of up to Rs. 40 lakh to the start-up based on its current valuation and growth stage will be provided through selected accelerators.
- It will also facilitate equal matching investment by the accelerator/investor.

- The programme aims to further the Indian start-up growth.

Governmental schemes/Programmes/initiatives

24. EASE 4.0

- » Prelims: EASE 4.0- Parameters

Context:

- FM unveiled the 4th edition of Public Sector Bank (PSB) Reforms Agenda – EASE 4.0.

About EASE 4.0

- PSB reforms agenda – EASE (Enhanced Access and Service Excellence) was launched based on the recommendations made by PSB Whole Time Directors (WTDs) and senior executives in PSB Manthan in November 2017.
- It encapsulates a synergistic approach to ensure prudent and clean lending, better customer service, simplified and enhanced credit, and robust governance and HR practices.
- The Reforms Agenda is pursued through a unique Reforms Index that enabled objective assessment of progress on all key areas in PSBs — viz., governance, prudential lending, risk management, technology- and data-driven banking, and outcome-centric HR — as well as enhanced transparency and accountability in the wider financial ecosystem.
- EASE 1.0 was launched for FY 2019 and the second edition for FY 2020.
- The fourth edition EASE 4.0 aims to further the agenda of customer-centric digital transformation and deeply embed digital and data into PSBs' ways of working.



Governmental schemes/Programmes/initiatives

25. Sub-Mission on Fodder and Feed.

- » Prelims: Sub mission on fodder and feed-provisions; National livestock Mission
- » Mains: Challenges with respect to animal fodder in Indian context; Significance of the new initiative

Background:

- A major problem faced by Indian farmers is the lack of affordable good quality feed and fodder for livestock.
- A study by the Indian Grassland and Fodder Research Institute has observed that for every 100 kg of feed required, India is short of 23.4 kg of dry fodder, 11.24 kg of green fodder, and 28.9 kg of concentrate feed.
- This is one of the chief reasons why Indian livestock's milk productivity is 20%-60% lower than the global average.
- When the input costs are considered, it is found that feed constitutes 60%-70% of milk production costs.

Details:

- Sub-Mission on Fodder and Feed Development is a sub-mission under the National Livestock Mission.
 - * National Livestock Mission is a centrally-sponsored scheme that started operating in 2014. The mission ensures quantitative and qualitative improvement in livestock production systems, especially in Sheep, Goat, Pig, Poultry, Feed and Fodder sectors.
- When the National Livestock Mission was launched in 2014, it focused on supporting farmers in producing fodder from non-forest wasteland/grassland, and cultivation of coarse grains. This model could not sustain fodder availability due to a lack of backward and forward linkages in the value chain. Therefore, the Mission has been revised to make the programme focus primarily on assistance towards seed production and the development of feed and fodder entrepreneurs.
- The Sub-Mission on Fodder and Feed Development provides for 50% Direct Capital Subsidy to the beneficiaries under the feed and fodder entrepreneurship programme and 100% subsidy on fodder seed production to identified beneficiaries.
- The Sub-Mission on Fodder and Feed intends to create a network of entrepreneurs in the hub and spoke model.
 - * Private entrepreneurs, self-help groups, farmer producer organisations, dairy cooperative societies, and Section 8 companies (NGOs) can avail themselves of the benefits under this scheme.
- It aims to connect entrepreneurs who will make silage and sell them directly to the farmers.
- Studies have indicated that by growing fodder crops one can earn Rs. 1.60 by investing Rs. 1 as compared to Rs. 1.20 in the case of common cereals like wheat and rice.

Significance of Sub-Mission on Fodder and Feed:

Increasing productivity, reducing costs:

- The lack of good quality feed and fodder impacts the productivity levels of cattle.
- The revised scheme has been designed with the objectives of increasing productivity, reducing input costs.
- Livestock is the major source of cash income for about 13 crore marginal farmers and is insurance in the event of crop failure. About 200 million Indians are involved in dairy and livestock farming.
- The Sub-Mission on Fodder and Feed recently announced by the Indian government is important from the perspective of poverty alleviation.

Ensure availability of green fodder:

- A major challenge in the feed sector emanates from the fact that good quality green fodder is only available for about three months during the year.
- The ideal solution to deal with the scarcity is to ferment green fodder and convert it into silage.
- The idea is that farmers should be able to grow the green fodder between two crop seasons and entrepreneurs can then convert it into silage and sell it at nearby markets at one-tenth of the price of concentrate/dry feed ensuring affordable quality fodder to dairy farmers.
- The large-scale production of silage will bring down the input cost for farmers since silage is much cheaper than concentrate feed.

INTERNATIONAL RELATIONS

International Relations: India's foreign policy

1. Evolution of India's foreign policy

- » Prelims: Operation Meghdoot; Operation cactus
- » Mains: Evolution of India's international relations since the time of independence to current times.

Between 1947 and 1962:

- India being a large, newly independent, impoverished, and highly diverse country, active engagement with other countries for its survival, security, and development became a necessity for India at its independence.

Relations with the neighbours:

- Independence and Partition left behind a messy territorial legacy in the Indian sub-continent.
 - * India's borders were initially poorly demarcated and it has had to compete with two nuclear-armed neighbours for territory.
 - * India itself was poorly integrated and the resulting sources of domestic insecurity benefited from support from neighbouring countries.
- India during this phase went to war with the neighbouring countries of Pakistan (1947) and China (1962).
 - * The Indo-Pakistani War of 1947–1948 was fought between India and Pakistan over the princely state of Jammu and Kashmir. This brought the Kashmir issue into the international relations domain.
 - * The disputed Himalayan border was the main cause of the Sino-Indian War in 1962.

Relation with major power blocs:

- In its initial years, India opted for flexible and friendly relations with both the U.S. and the Soviet Union and their respective allies. In fact, India initially received the bulk of development and military assistance from the West; it was only from the mid-1950s onwards that the Soviet Union extended support.

Leader of the third world:

- India played an activist role in the decolonising world, extending diplomatic and in some cases security assistance to independence movements in Asia and Africa.
- India also sent military missions to Korea and the Congo as part of the peace keeping efforts

Between 1962 and 1991:

Relations with the neighbours:

Pakistan:

- The Indo-Pakistani War of 1965 began following Pakistan's Operation Gibraltar, which was designed to infiltrate forces into Jammu and Kashmir to precipitate an insurgency against Indian rule. India retaliated by launching a full-scale military attack on Pakistan. A diplomatic intervention by the Soviet Union and the United States, and the subsequent issuance of the Tashkent Declaration resulted in ending the war.
- India's intervention in the Bangladesh war became imminent given India's stakes in the issue. India provided substantial diplomatic, economic and military support to Bangladeshi nationalists. The resulting 1971 Indo-Pak war saw India emerging the victor and the formation of independent Bangladesh.
- India and Pakistan have fought intermittently since 1984 over control of the Siachen Glacier. The conflict was started in 1984 by India's successful capture of the Siachen Glacier as part of Operation Meghdoot, and subsequently continued with Operation Rajiv.

China:

- China tested its nuclear weapons in 1964. This prompted India to initiate its own nuclear weapons programme to achieve nuclear parity with China. The Pokhran nuclear test of 1974 made India a nuclear power.
- Indian forces were successful in pushing back against China in Sikkim in 1967. Subsequent to anti-monarchy protests India took control of Sikkim as its associate state first and subsequently into the 22nd state of India via a constitutional amendment in 1975.

Other neighbouring countries:

- Following the Indo-Sri Lankan Accord of 1987, India intervened in the Sri Lankan Civil War through the deployment of the Indian Peace Keeping Force in Sri Lanka in a peacekeeping role.
- India's intervention in the 1988 attempted coup in Maldives became necessary to protect its own interests in India's backyard of the Indian Ocean region. India, intervened with "Operation Cactus".

Domestic challenges:

- India's domestic security challenges in Punjab, Jammu and Kashmir and the North-east assumed an external angle via the active support to insurgent outfits by the neighbouring countries of Pakistan, China and Bangladesh.

Relation with major powers:

- The Indo-Soviet Treaty of Peace, Friendship and Cooperation in 1971 marked a significant deviation from India's previous position of non-alignment during the Cold War. This was necessitated given the increasing Pakistani ties with China and the United States at that time.
- India found itself at odds with the U.S. over issues such as, intervention in Bangladesh, nuclear non-proliferation and trade. India was threatened by military action by the U.S. over the Bangladesh liberation movement and severe sanctions were levied on India over its Pokhran Nuclear tests.
- Foreign technical and financial assistance were instrumental in the important economic strides made in India during this period, including the Green Revolution.

Post 1991:

The economic Challenges and the LPG era:

- The balance of payments crisis in the post-Cold War era resulted in India adopting a range of reforms to liberalise the economy.
 - * The Indian economy had remained relatively closed at a time when other Asian economies had begun to liberalise.
- In this direction India adopted the Look East Policy and deepened its relations with the Association of Southeast Asian Nations.

Relation with neighbouring countries:

China:

- India has tried to normalize its relations with China with the signing of a border peace and tranquility agreement with China in 1993 agreeing to maintain the status quo on their mutual border pending an eventual boundary settlement. This was followed by another important set of agreements with China in 2003
- A more assertive China has begun to test India on the border and undermine Indian interests in South Asia and the Indian Ocean Region. Recent India-China relationship has been marred by border skirmishes. The stand-offs at Doklam and Ladakh between 2017 and 2021 being the most recent.
- In a bid to counter Chinese aggressiveness, India has employed a economic approach in addition to the military standing. India has boycotted China's Belt and Road Initiative, raised barriers to Chinese investment and banned some Chinese technology.

Pakistan:

- India's repeated efforts to normalize its ties with Pakistan have failed given Pakistan's continued non conventional warfare approach to India via its support to terrorist organizations working against India.
 - * The Kargil war, the hijacking of Indian Airlines flight IC-814 to Kandahar (Afghanistan), the 2001 attack on India's Parliament and the more recent terrorist attacks at Pathankot, Uri and Pulwama have only strained the Indo-Pak relations.

Relation with major powers:

- In the Post cold war phase, India made attempts to make initial military contacts with the U.S., even as it has sought to maintain normal relations with Russia too.
- After 2004, the then government worked extensively to resolve the outstanding question of India's nuclear status. By eliminating barriers to 'dual use' technologies and equipment, as well as a host of associated export controls, India had the opportunity to establish robust defence relations with the U.S. and its allies. A number of defence and security agreements have been signed between the two countries of late which have only deepened the strategic relation between the oldest democracy and the biggest democracy in the world.
- In a bid to counter the increasingly assertive China, India has sought deepening of relations with other balancing powers in the Indo-Pacific. Security relations and understandings with the U.S. and its allies (Japan, France, Australia) have accelerated after 2014.

India's trade relations:

- Despite a strategic alignment with U.S. and Europe, India's relations with the U.S. and Europe have grown more contentious over trade issues.
- In the post global financial crisis phase India has sought to partner with China and other rising powers on institutional reform, financial lending, climate change, and sovereignty. This is indicative of India's emphasis on national interest as a core guiding factor for its foreign policy.

Relations with West Asia:

- India's relation with West Asian partners has assumed greater importance during this phase.
- India has worked towards establishing of diplomatic ties with Israel during this period while continuing to deepen its relationship with other major powers of the region like Saudi Arabia and Iran.

Conclusion:

- Ever since Independence, India's fate has been

closely tied to the rest of the world. The constantly evolving international environment presented India not just with opportunities but numerous challenges.

- Despite the different approaches to international engagement over the period since independence, India's objectives in its foreign policy approach has been broadly consistent: development, regional security, a balance of power, and the shaping of international consensus to be more amenable to Indian interests.
- The ravages caused by the COVID-19 pandemic, the growing international competition with China and the turmoil in Afghanistan pose serious challenges to India. Apart from domestic measures to counter these challenges, India's global interactions will play a significant role in helping India counter these challenges. India should use its growing network of international strategic and economic partners to counter these challenges. Hence India's future, too like its past, will remain intertwined with global affairs.

International Relations: Bilateral, regional and global groupings and agreements involving India and/or affecting India's Interests

2. India's UNSC presidency term

- » Prelims: UNSC structure and functioning
- » Mains: India's policy priorities during its month long presidency of the UNSC and their relevance

Context:

- India has taken over the month-long presidency of the United Nations Security Council (UNSC) in August 2021.

Details:

- India has outlined the following focus areas

Maritime security:

- Maritime security is inevitable for maintenance of international peace and security.
- In this direction India proposes international cooperation to tackle maritime crime and security issues.

Counterterrorism:

- Terrorist acts pose immense threat to international peace and security.
- In this direction there is the need to enhance coordination between the U.N. and the Financial Action Task Force (FATF) to address the link between money-laundering and terror-financing.
- There is the need for enhanced attention on the linkages between terror and transnational crime.

Peacekeeping:

- India is one of the top troop contributors to the U.N. missions.
- A key priority would be to ensure the safety of the Indian peacekeeping personnel. The use of technology can be helpful in this direction.
 - * India is expected to deploy a mobile app — UNITE AWARE — that will provide terrain information and "improve situational awareness" for peacekeepers.

Additional information:

- India is an elected non-permanent member of the Security Council and had received the support of the Asia-Pacific countries in the election.
- The UNSC presidency is held by each of the council's members for a single month based on the alphabetical order of the member states' names.
- The presidency for the month of August will be India's first time at the helm of the UN's most important body during its 2021-22 tenure as a non-permanent member of the Security Council.
- India had last assumed the UNSC presidency in 2011.
- It will again preside over the Council in December 2022, the last month of its two-year tenure.

International Relations: Bilateral, regional and global groupings and agreements involving India and/or affecting India's Interests

3. Maritime security

- » Prelims: UNCLOS; India's SAGAR initiative
- » Mains: Five principle framework for maritime security

Context:

- As part of India's United Nations Security Council (UNSC) presidency, Indian Prime Minister chaired a debate on maritime security titled, 'Enhancing Maritime Security — A Case for International Cooperation'.
- Maritime security is one of the focus areas outlined by India during its month long presidency of the UNSC.

Details:

- Indian Prime Minister outlined a five-principle framework for Maritime security
 - * Removing barriers to maritime trade
 - * Peaceful resolution of maritime disputes in accordance with international law. This would be extremely important for promoting mutual trust and confidence, and ensuring global peace and stability.

- * Co-operation in tackling maritime threats from non-state actors and natural disasters
- * Conservation of maritime environment and marine resources. This gains all the more significance amid reports of pollution from plastic waste and oil spills.
- * Promoting maritime connectivity based on global norms and standards. This would help boost maritime trade
- The UNSC also adopted a 'Presidential [India's] Statement' which reaffirmed that the United Nations Convention on the Law of the Sea (UNCLOS) establishes the legal framework for maritime activities.

Measures taken by India:

- SAGAR ('Security and Growth for all in the Region') is an 2015 Indian framework for regional maritime security.
- * SAGAR is aimed at strengthening economic and security connections with regional maritime nations.
- India had resolved its maritime boundary issue with neighbour Bangladesh in line with International norms and laws.

International Relations: Bilateral, regional and global groupings and agreements involving India and/or affecting India's Interests

4. Peacekeeping operations

- » Prelims: UNITE AWARE
- » Mains: India's contribution in peacekeeping operations; Framework for ensuring safety of peacekeepers

Context:

- Indian External Affairs Minister, S. Jaishankar, recently presided over a United Nations Security Council (UNSC) open debate on technology and peacekeeping.

Background:

UN Peacekeeping missions and India's role:

- India is one of the top troop contributors to the U.N. peacekeeping missions and thus a key priority has been to ensure the safety of the Indian peacekeeping personnel.
- * Peacekeeping has been earmarked as a priority area of focus for India month-long UNSC presidency.
- India has been a pioneer in UN Peacekeeping. Deploying more than a quarter of a million troops over the years to as many as 49 UN peacekeeping Missions, Serving under the blue flag, 175 gallant Indian soldiers have made the supreme sacrifice, the largest number among

troop contributing countries. Currently around 5000 Indian personnel have been deployed across nine missions.

- Peacekeeping would play a crucial role in India's vision of ensuring international peace and security.

Details:

- The Security Council adopted a "Presidential Statement" underscoring the importance of peacekeeping, the complexities and challenges of the environment in which it occurs and the importance of existing and new technologies to protect peacekeepers.
- A four-point framework was outlined for securing the safety of peacekeepers.
 - * Deployment of proven, cost-effective and field-serviceable technologies
 - * Availability of sound information and intelligence
 - * Continuous technological improvements and their availability
 - * Capacity building and training of peacekeepers with regard to technology

Initiatives announced by India:

UNITE Aware:

- The External Affairs Minister announced the rollout of 'UNITE Aware'.
- This is a technological platform developed in partnership with the UN to help enhance the safety of UN peacekeepers.
- UNITE Aware will provide terrain information and "improve situational awareness" for peacekeepers by allowing for visualizing, coordinating and monitoring of peacekeeping operations on a real time basis.

MoU with UNCAP:

- A Memorandum of Understanding between India and the UN in support of the "Partnership for Technology in Peacekeeping" initiative and the UN C4ISR Academy for Peace Operations (UNCAP) has also been announced by India.
 - * UN C4ISR Academy for Peace Operations is located in Entebbe, Uganda.
- This will help meet the training needs of peacekeeping forces in line with available technological capability and future requirements as well.

International Relations: Bilateral, regional and global groupings and agreements involving India and/or affecting India's Interests

5. India, Sri Lanka and Maldives to collaborate on security

- » Mains: Security co-operation- focus areas and their significance for India

Context:

- Deputy NSA-level meeting of India, Sri Lanka and the Maldives.

Details:

- India, Sri Lanka and the Maldives have identified "four pillars" of security cooperation.
 - * Marine Safety and Security
 - * Counter-terrorism and Deradicalization
 - * Human trafficking and Organised Crime
 - * Cyber security
- Specific proposals for cooperation in each area, including joint exercises and training were also discussed in the meeting.
- In the previous NSA level talks between the two countries, the three countries agreed to expand the scope of intelligence sharing.

Significance for India:

Maritime security in the strategic Indian Ocean Region:

- This meeting marked the revival of NSA-level trilateral talks on maritime security in the Indian Ocean Region after a gap of six years and will help build on the 'Colombo Security Conclave' architecture which seeks to promote maritime security in the Indian Ocean Region.

Boost to India's image as a net security provider in the region:

- Sri Lanka and Maldives have a strategic location in the Indian Ocean region and their co-operation will be inevitable for India in the region.
- The initiative will also help India build on its image as a net security provider in the Indian Ocean Region.

China factor:

- The initiative, grounded in military and security collaboration, assumes all the more significance in the wake of the current geostrategic dynamic that India shares with Sri Lanka and the Maldives.
 - * India has aired security concerns over China being awarded development projects in Sri Lanka's northern province close to India's border. India has also strongly criticized Sri

Lanka's moves to allow Chinese submarines to dock in its ports. India is wary of increasing Chinese presence and influence in the neighbouring island nation of Sri Lanka.

- Maldives's engagement with members of the Quad including India, United States, Japan and Australia has been growing over time, especially in the area of defence cooperation. The Quad is itself viewed as an alliance to counter the increasing assertiveness of the Chinese in the region.

International Relations: India's bilateral relations

6. India-Russia defence relations

- » Prelims: S-400; RELOS; INDRA exercise and 2+2 mechanism
- » Mains: Robust defence ties between India and Russia

Context:

- The article analyzes the robust defence ties between India and Russia.

Details:

Major defence supplier:

- India may have seen a strategic tilt towards the US in the last decade, but Russia continues to be a large supplier of defence equipment to India.
 - * India went ahead and finalized the S-400 air defence system deal with Russia despite the threat of sanctions from U.S. under the CAATSA regime.

Collaboration in defence production:

- Unlike the seller buyer relationship that India enjoys with other defence suppliers, Russia has also involved in large scale technology transfer and joint development ventures with India in the realm of defence technology.
- India and Russia are exploring possibilities of co-operation and collaboration in using India as a production base for exporting to third countries of Russian-origin equipment and services.

2+2 mechanism:

- India and Russia have agreed to establish a "2+2 ministerial dialogue" between foreign and defence ministers to add further momentum to the bilateral strategic partnership.
- Russia now has become part of a small group of countries with whom India has 2+2 dialogue of foreign and defence ministers. India has such mechanism with the US, Japan and Australia.
- What is significant is Russia is the first non-Quad member country with which India will now have the 2+2 mechanism.

Military exercises:

- India and Russia have been undertaking periodic bilateral exercises (Exercise INDRA) to strengthen mutual confidence and interoperability between the armed forces and enable sharing of best practices between the contingents of both the countries.
- India and Russia are also seeking to expand cooperation in Central Asia and the possibility of supplementing bilateral exercises with trilateral and multilateral ones.

Proposed agreements:

- India and Russia are expected to conclude the bilateral logistics agreement, Reciprocal Exchange of Logistics Agreement (RELOS), and a Navy-to-Navy cooperation memorandum of understanding (MoU) during the upcoming Russian Defence Minister's visit to India.

Co-operation on Afghan issue:

- India and Russia have also agreed to co-operate and align their approaches to the possible threats of rise of extremist ideology, drug trafficking, organized crime and the flow of refugees that could arise from the rapidly evolving situation in Afghanistan.

International Relations: India's bilateral relations

7. India- Iran ties

- » Prelims: Chabhar port
- » Mains: Strain in India-Iran ties; Significance of robust ties with Iran

Context:

- The visit of Indian External Affairs Minister to Tehran to attend the swearing-in ceremony of the newly elected Iranian President Ebrahim Raisi.

Background:

Strain in India-Iran ties:

- India had cancelled oil imports from Iran due to U.S. sanctions.
- There has been very slow progress in the Chabahar port project and Iran has also dropped India from Port rail link project (Chabahar-Zahedan line).
- Breaking for its traditional stance, Iran has made comments on Kashmir which has not gone down with India which treats it as an internal issue.

Significance of the visit:

Reset of ties:

- The visit signals easing of bilateral tensions between India and Iran. It could as well mark a milestone in recent attempts by both sides to

reset the ties that have been under strain.

Fine balancing of India's relations:

- It is also indicative of India's traditional approach to relations with Iran, wherein India has sought to maintain ties with Iran even in the face of opposition from Iran's adversaries, namely the United States, Saudi Arabia and Israel. It will seek to balance its ties with Iran with that with the U.S., Saudi Arabia and Israel.
- India will continue to walk its tightrope between its traditional ties with Iran and the growing strategic partnership with Washington.

Co-operation on the Afghanistan issue

- The visits come amidst rapid developments in Afghanistan, with the U.S. completing the pull-out of troops and the Taliban increasing its attacks on Afghan cities.
- The developments concerns both India and Iran as a Taliban controlled Afghanistan could pose serious security threat for Iran and India.
- Also notably India and Iran are the two regional powers which have been left out of the "Troika plus" meeting of U.S.-Russia-China and Pakistan scheduled in Doha to discuss Afghanistan's future.
- India and Iran will have to cooperate more closely on Afghanistan to secure their interests.

International Relations: India's bilateral relations

8. India Britain ties

- » Mains: India-Britain bilateral relations

India-U.K. relations

- India in recognition of the deepening relationship with the U.K. has awarded it the status of 'Comprehensive Strategic Partnership'.

U.K. India 2030 Roadmap:

- Roadmap 2030 for India-UK future relations was launched during India-UK Virtual Summit in May, 2021.
- The 2030 vision is for revitalized and dynamic connections between the people of the two countries; re-energised trade, investment and technological collaboration; enhanced defence and security cooperation that brings a more secure Indian Ocean Region and Indo-Pacific and India-UK leadership in climate, clean energy and health.

Co-operation at UN:

- U.K. has been working closely with India in the United Nations Security Council on the issues of counterterrorism, maritime security, and peacekeeping.

- The U.K. supports a permanent seat for India on the Security Council.

On Climate Change:

- Climate action remains a top priority in the U.K.-India relationship.
- U.K. is a partner in Indian-led International Solar Alliance.

Indo-pacific strategy:

- U.K.'s Integrative Review of Security, Defence, Development and Foreign Policy has indicated a strong Indo-Pacific 'tilt'.

International Relations: Relations between India and neighbouring countries-Sri Lanka

9. India Sri Lanka bilateral relations

- » Mains: Strain in bilateral relations

Context

- Sri Lanka's new High Commissioner-designate to India through the nation's new "Integrated Country Strategy" for India aims to restore ties with it.

Background

- In recent years, the Indo-Sri Lanka bilateral relationship has been increasingly dominated by a transactional approach that has resulted in a growing trust deficit between the two nations.
- The bilateral relationship has been under strain over a number of issues.

Cancelled port project:

- In February 2021 Sri Lanka had scrapped the East Container Terminal project of Colombo signed in 2019 with India.
- This came amid other signs of China gaining the upper hand in infrastructure deals in Sri Lanka.

Fishermen's issue:

- A major source of concern for the bilateral relations has been the conflict in the Palk Bay.
- Sri Lankan fishermen object to Indians using bottom trawlers and fishing illegally along their coast. There have been arrests of Indian fishermen which has led considerable backlash in India.

India overlooking SL's request for financial support

- Sri Lanka has expressed disappointment over the lack of movement on the requests it made to India for assistance, including a debt repayment waiver for three years and a separate currency swap for \$1 billion to help with economic crisis.

Economic aspects:

- The negotiations for Economic and Technology Cooperation Agreement have remained deadlocked.

- Sri Lanka has been complaining of increasing protectionism and limited market access in India.

Details

- Sri Lanka's Integrated Country Strategy for India proposes building connectivity between the two nations, promoting trade and investment, as well as religious exchanges.
- * The report recommends speeding up the West Container Terminal project that Sri Lanka offered after cancelling the ECT project, as well as the Trincomalee Oil Tank Farm and other pending projects involving India.
- * It advocates an inter-agency committee on trade, investment and tourism to increase foreign direct investment from India as well as exports from Sri Lanka.
- * The strategy paper advises promoting exchanges of Buddhist and Hindu scholars as well as Sri Lankan Catholic pilgrims..

Conclusion:

- Bound by geography, economics, culture, history and democratic values, India-Sri Lanka bilateral relations hold immense potential as well as significance for both nations.'

International Relations: Effect of policies and politics of developed and developing countries on India's interests/ diaspora

10. The Abraham Accords as India's West Asia Bridge

- » Prelims: Abraham Accord; Zayed Talwar naval exercises; Duqm port
- » Mains: Significance of Abraham Accord for India and challenges

What are Abraham Accords?

- The Abraham Accords are a joint statement made between Israel, the United States and the United Arab Emirates on August 13, 2020.
- It is the first Arab-Israeli peace deal in 26 years.
- The United Arab Emirates and Bahrain agreed to establish full diplomatic ties with Israel as part of a deal to halt the annexation of occupied land sought by the Palestinians for their future state.
- It was brokered by US President Donald Trump.
- It was initially agreed to in a joint statement by the United States, Israel and the United Arab Emirates (UAE) in 2020.
- Through this, UAE became the third Arab country, after Egypt in 1979 and Jordan in 1994, to agree to formally normalize its relationship with Israel as well as the first Persian Gulf country to do so.'

Significance of the Abraham Accords for India:

- India welcomed the Abraham Accords, since it shares cordial relationship with all the signatories of the accord.
- It was believed then, that India could to gain unprecedented benefits as a result of the accords which would offer peace and stability in the region.
- The signing of the Accords has removed a significant strategic obstacle for New Delhi.

Deepening cooperation in West Asia:

- India's efforts towards increasing strategic footprint in West Asia has been in the development phase.
- In 2020, Indian Army chief, visited the UAE and Saudi Arabia, becoming the first chief of the Indian Army to do so.
 - * The foundation for these visits laid in 2017, when a deal was concluded with Muscat for access to Duqm Port, including dry dock use by the Indian Navy.
- India recently conducted the 'Zayed Talwar' naval exercises with the UAE off the coast of Abu Dhabi.
 - * This signals further deepening the fast-developing strategic cooperation between the two countries.
- These examples show the developments on the defence front between India and the West Asian region.
- The Arabian Sea and the extended Indian Ocean Region (IOR) has taken a position of power in Indian strategic thinking, considering developments such as the IAF's visit to Saudi Arabia in 2015, hosting visiting Iranian naval warships in 2018, defence of the critical waterways in and around the Persian Gulf.

The Iran Link:

- Recent, multiple visits by India's External Affairs Minister and Defence Minister followed by Iranian Defence Minister's visit to India highlight a revitalised strategic cooperation between the two countries.
- In the backdrop of deepening Afghanistan crisis, Iran, as part of India's West Asia strategy will play a significant part in India's outreach in the months to come.
- Connectivity projects such as Chabahar Port and Chabahar-Zahedan rail project remain critical.

Challenges:

- Not all Arab States have been on board with the geopolitical shifts resulting from the Accords.
- Despite a lot of effort from Israel, Saudi Arabia has maintained a distance from this arrangement.

- * While Saudi Arabia has praised the Accords, its focus is on the resolution of the Palestinian issue.
- There are multiple obstacles to the India-Iran bilateral relations led by U.S. sanctions against Iran and the general tensions between Israel, the Gulf and Iran via proxy battles in theatres such as Yemen, Syria and beyond.

Conclusion:

- India's strategic role in West Asia will be reflective of its increasingly important place in the global order. From its presidency in the UN Security Council to its role in the Indo-Pacific, India is expected to be more assertive, diplomatically and militarily, in its posturing.

International Relations: Effect of policies and politics of developed and developing countries on India's interests / diaspora

11. Biden govt. non-committal on support for India's UNSC bid

- » Prelims: G4 and Uniting for Consensus (UFC) group
- » Mains: India's bid for permanent seat at UNSC- Arguments in favour; Need for urgent reforms of UN

Context

- The U.S. position on reforms of the United Nations Security Council (UNSC).

Details

- The previous U.S. administrations in the past have backed India's bid for a permanent seat at the UNSC. However, the current Biden administration has continued to remain non-committal on the issue.
- While the U.S. has offered qualified support for enlargement of the UNSC, in terms of permanent and non-permanent members, it does not support expansion of veto power beyond the permanent members or its alteration.
 - * The veto power in the UNSC is exclusive to the five permanent members: China, France, Russia, the U.K and the U.S.
- The U.S. has also refrained from saying the U.S. supported India and other members of the G4 for a permanent UNSC seat.
 - * The G4 nations comprising Brazil, Germany, India, and Japan are four countries which support each other's bids for permanent seats on the United Nations Security Council.
- The U.S. has attributed this stance to regional disagreements on who should get the seat. The Uniting for Consensus (UFC) group consisting

of Pakistan, South Korea, Italy and Argentina oppose the bid by the G4 group for permanent seat at the UNSC.

International Relations: Effect of policies and politics of developed and developing countries on India's interests// diaspora

12. U.S.'s Indo-Pacific foreign policy

- » Mains: U.S.'s Indo-Pacific policy- effect on India's interests

Context

- High profile visits of senior U.S. officials to the Indo-Pacific region.

Details:

- Senior officials like Deputy Secretary of State, Secretary of Defense and Secretary of State have made official visits to many crucial countries in the Indo-Pacific region.

East Asia:

- The countries in focus were Japan, South Korea, Mongolia and China.
- * The visiting Deputy Secretary of State emphasized on deepening the U.S.'s relations with Japan and South Korea and participated in a trilateral meeting involving Japan and South Korea, perhaps in a bid to smoothen tensions afflicting the two east Asian neighbours. The U.S. reiterated its commitment to working with allies and partners for the promotion of peace and prosperity and upholding a 'rules-based order', the code word critical of China's behaviour.
- * The visit to Mongolia marked the first such high profile visit since 2016. The visit gains all the more importance given the fact that Mongolia enjoys a close relationship with China.
- * In the China visit, Deputy Secretary of State conveyed that the U.S. welcomed competition but did not seek confrontation with China. She discussed the dismal human rights situation in Xinjiang while also discussing logistics for a possible Biden-Xi Jinping meeting at the upcoming G20 summit in Rome.

Southeast Asia:

- The Secretary of Defense covered three important ASEAN member-states — Singapore, Vietnam and the Philippines — during the trip.
- * In a joint statement, Singapore and the U.S. agreed that America's presence in the region is "vital for its peace, prosperity and stability". The defence agreements (Singapore's logistical support to U.S. military aircraft and vessels and U.S.'s air force fighter training facilities for Singapore) between the two countries were

appreciated

- * The U.S. encouraged Vietnam to develop closer defence cooperation with the U.S.
- * The Philippines agreed to full restoration of the Visiting Forces Agreement with the U.S.
 - ◇ Visiting Forces Agreement provides the legal foundation for the U.S. military presence in the Philippines
- The visiting Secretary of Defense lashed out at the Chinese claim on South China Sea and aggression against India. The Secretary of Defense made it clear that while the U.S. did not seek confrontation with China it would be forced to take necessary actions to defend its interests and that of its allies.

South Asia:

- The U.S. Secretary of State made a crucial visit to India and held meetings with the Indian Prime Minister, the National Security Adviser and the External Affairs Minister.
- It sought to bring out the fact that the areas of convergence between the two nations are expanding and the areas of divergence are shrinking. On the Indo-Pacific strategy the two Foreign Ministers agreed to cooperate on a range of geopolitical and geo-economic issues. The two countries also sought to work together on the Quad platform.
- The Secretary of State statement that it's friendship with India is one of the closest that the U.S. has is indicative of the importance that the U.S. attaches to India in its Indo-Pacific strategy.

The takeaways:

- The article tries to draw inferences from the above high profile visits and the U.S.'s intentions in this regard.

Strategic refocus:

- The article describes these high profile visits as a U.S. diplomatic outreach to the Indo-Pacific region.
- This marks a deliberate strategic re-focus on the part of the U.S., away from West Asia and towards maritime Asia and the challenges posed by China to its global dominance. Thus America's China policy and the Rest of the Indo-Pacific policy will run in tandem.
- The high profile visits intend to mould the geopolitical equations in the region in the U.S.'s favour.

Multi pronged approach vis-a-vis China:

- While the U.S. aims to adopt a tough attitude towards China, it still is open to the idea of engaging with China for dialogue. The relationship with China would continue to be

marked by three characteristics — adversarial, competitive and cooperative.

Integrated deterrence:

- The U.S. is seeking “integrated deterrence” against China. The U.S. will be seeking full engagement of and contribution by the like-minded states of the region in its endeavour to counter China.

International Relations: Effect of policies and politics of developed and developing countries on India's interests / diaspora

13. Taliban Takeover of Afghanistan

- » Prelims: Panjshir valley
- » Mains: Regional and global ramifications of the Taliban takeover of Afghanistan; Challenges and concerns for India.

Context

- After 20 years of war, the Taliban has captured Afghanistan's capital Kabul.

Details

- This marks the end of a 20-year Western experiment aimed at remaking the country.
- Taliban said that it would announce the Islamic Emirate of Afghanistan from the presidential palace.
- Afghanistan was called the Islamic Emirate of Afghanistan under the Taliban government that was ousted by the U.S.-led forces after the 9/11 attacks.

Factors which have aided this rapid ascent of Taliban to power in Afghanistan

U.S.-Taliban deal:

- The U.S. Taliban agreement signed in February 2020, marked the ascent of Taliban to prominence in Afghanistan.
- * The very fact that the then U.S. administration held direct talks with the Taliban bypassing the Afghan government and signed an exit agreement even without taking the elected government into confidence, gave the Taliban an upper hand in Afghanistan affairs.
- * The agreement also failed to extract any concession from the Taliban towards a political settlement in Afghanistan or even a ceasefire. This provided the Taliban a sense of victory, while demoralising the Afghan troops.
- * The U.S. decision to cut down on airstrikes post the Doha agreement allowed the Taliban to regroup across the country.

External support:

- Pakistan has been providing all kinds of

support to the Taliban in the form of arms and ammunition, training, finances and shelter for the Taliban fighters. This supply chain has helped Taliban thrive in the fight against the Afghan security forces.

- Legitimised by the U.S. deal, the Taliban also reached out to regional players such as China, Russia and Iran with success. The recognition offered by these countries to the Taliban only helped increase its prominence in Afghanistan.

Internal divisions:

- The Afghanistan administration was internally divided based on ethnic lines. The unity government formed after the U.S. interference was not very effective in suppressing the internal divisions and putting up a united front against the Taliban forces. This led to the weakening of the anti-Taliban coalition.

American withdrawal

- The withdrawal of U.S. troops from Afghanistan involved not just the soldiers and American air support but also the intelligence agents and contractors who were serving Afghanistan's war planes and helicopters. This adversely impacted the functioning of the Afghan air force, the only superiority the Afghan troops had in the war against the Taliban.
- This allowed the Taliban to overrun vast areas in a short period of time. This allowed the Taliban to take the rural districts first and then lay siege to the cities.

Lack of resistance from the Afghan security forces

- The overstretched and resource-limited Afghan security forces were under pressure from the drying supply lines. The demoralized forces when given an option to surrender chose it to save their lives
- As soldiers surrendered without a fight, cities after cities fell to the Taliban. Within eight days after the capture of the first provincial capital, more than half of the provincial capitals were under the control of the Taliban. Kabul had been surrounded by the Taliban on all sides and its fall became inevitable.

Afghanistan Under the Taliban

- There are indications of a return to the harsh version of Islamic rule Afghans lived under from 1996 until 2001.
- The biggest losers in the transition would be Afghan women and youth who had political, civic, economic and human rights and opportunities, and media freedoms under the Afghan government.
- Afghans fear that the Taliban could reimpose the kind of brutal rule that almost eliminated women's rights.

- Fear is running high among the ethnic Hazara minority, Shia Muslims who were persecuted by the Taliban and made major gains in education and social status over the past two decades.
- Commercial flights were later suspended after sporadic gunfire erupted at Kabul International Airport.
- Evacuations continued on military flights.
- The immediate challenge is a massive humanitarian crisis on account of the hundreds of thousands of internally displaced who have left other war zones and taken shelter on pavements and parks in Kabul.
- Also, there is the panic and rush for passports and visas for those who fear for their lives from the Taliban or their sponsors.
- There have been reports of revenge killings and other brutal tactics in areas of the country the Taliban have seized in recent days.

Regional Dynamics:

Iran

- Iran's top concerns include stemming the flow of migrants and refugees, containing narcotics trafficking, maintaining cross-border trade, mitigating the threat from the Islamic State group's Khorasan branch, sharing water resources and ensuring the safety of Afghanistan's Shia minority.
- The Hazaras, who are mostly Shiite Muslims, are the third-largest ethnic group in mostly Sunni Afghanistan. In the past, the Taliban singled them out for persecution

China

- China indicated it would not consider recognising the new Taliban regime in Kabul until a government was formed.
- East Turkestan Islamic Movement (ETIM)
 - * It is a Uyghur extremist organization founded in Western China.
 - * Its stated goals are to establish an independent state called East Turkestan replacing Xinjiang
 - * China's message has been that it would be open to working with the Taliban but called on the grouping to "make a clean break" from its links with terror outfits, particularly the East Turkestan Islamic Movement (ETIM) that has carried out attacks in China's Xinjiang region

Russia

- Russian President Vladimir Putin criticised the United States and the NATO allies for sending refugees from Afghanistan to central Asian countries, and said they pose a direct threat to Moscow.
- * Russia allows visa-free travel for residents of ex-Soviet Central Asian countries.

Central Asian Nations

- Some central Asian nations, including Uzbekistan, Tajikistan and Turkmenistan — which share borders with Afghanistan — have raised concerns over the influx of refugees into their countries after fleeing Taliban regime. They are worried Islamic State fighters and other fundamentalists as well as religious extremists could infiltrate into the countries in the guise of refugees.
- * Countries like Uzbekistan and Tajikistan fear that Taliban's hardline religious views could disturb their secular social fabric.

Northern Alliance:

- Amid a complete takeover of Afghanistan by the Taliban, a resistance force, led by Ahmad Massoud, son of late Afghan politician Ahmad Shah Massoud, is reportedly gathering strength in Panjshir Valley.

Panjshir valley

- The valley is located north of Kabul in the Hindu Kush. This was a resistance stronghold against the Soviets in the 1980s and then against the Taliban in the 1990s.
- Since it always remained the resistance zone, it was never conquered by any forces -- neither by foreign forces nor by the Taliban.

Resistance

- The valley is the epicentre of what is being called the National Resistance Front of Afghanistan or the Second Resistance.
- This is also being called a renewed Northern Alliance. Northern Alliance was the coalition of rebel groups that opposed the Taliban rule between 1996 and 2001.

Ethnicity

- The valley is home to over one lakh people and many of them are Tajiks. The valley has the country's largest concentration of ethnic Tajiks.

Significance

- The Taliban have not attacked Panjshir and many believe that it is because of the location of the valley, which makes it a natural fortress.

Challenges

- In the 1990s, Massoud had the backing of Russia, Iran and India, and the Northern Alliance was strong across northern and northeastern provinces.
- This time, Panjshir is the only province that stays out of the Taliban's control. It's to be seen whether Panjshir could hold off the Taliban and Mr. Saleh could muster enough domestic and regional support to mount a credible challenge to them.

The legal challenges in recognising the Taliban:

Issue

- The Taliban's takeover of Afghanistan has triggered a new debate in international law on the issue of recognising an entity that claims to be the new government of the country.
- This debate assumes significance as China and Russia (2 of the 5 permanent UNSC members) have shown readiness to recognise a Taliban-led government.
- The questions of recognition arise as the change of government happened through extra-legal methods like ousting the sitting government using unconstitutional means.

Government versus state:

- In the Afghanistan context, the issue is not about the recognition of Afghanistan, whose legal personality remains intact.
- The recognition of the government must not be confused with the recognition of the state under international law.
- Malcolm Shaw, writes, "a change in government, however accomplished, does not affect the identity of the State itself."

Why Recognise the government?

- Recognition of governments under international law is important to know who the governing authority of the state is, who has the responsibility for effectually carrying out domestic and international legal obligations ranging from pursuing diplomatic relations to the protection of human rights etc.

Tests in international law:

Whether countries recognise the Taliban regime or not will depend on their political considerations and geo-strategic interests. Certain criteria that have evolved in international law on deciding the issue of recognition of governments must be looked at.

1. Theory of Effective Control:

- Traditionally, 'effectiveness' is the test used in international law to make a decision about the recognition of a new government.
 - * To recognise a government means to determine whether it effectively controls the state it claims to govern.
 - * To check if the government has effective control over the state's territory (or a part of it), a majority of the population, national institutions, the banking and monetary system, etc. with a reasonable possibility of permanence.
- The assumption is that effective control means the people of the country accept the new regime; if they did not, they would overthrow it.
- Under this doctrine, it is immaterial how the new

government occupied office.

- Since the Taliban now effectively controls Afghanistan, as per this test, it would be recognised as Afghanistan's government for international law and thus, international relations.

2. Theory of Democratic Legitimacy:

- The end of the Cold War, the subsequent spread of democracy in the world, and the growing demand for universal respect for human rights has given an impetus to this doctrine.
- According to this doctrine, recognition of a government also depends on whether it is the legitimate representative of the people it claims to govern.
- The governments that capture power through non-democratic means should not be recognised by states.
- This doctrine has led many countries to bestow legal recognition on governments in exile in place of governments exercising effective control. For Example:
 - * Many countries recognised Yemen's Abdrabbuh Mansur Hadi government in exile since 2015 on the ground that the rebellious separatists acquired power in Yemen through illegal means.
 - * Nicolás Maduro government in Venezuela is not recognised by several countries due to the alleged lack of democratic legitimacy.

The Afghanistan Scenario:

- Despite exercising effective control over Afghanistan, the Taliban regime lacks democratic legitimacy.
- Therefore, it would fail to be recognised as the legitimate representative of Afghanistan if the doctrine of democratic legitimacy is applied.
- Things would become even more complicated if the Afghan President, Ashraf Ghani, who fled the country when the Taliban entered Kabul, were to announce a government in exile.
- While governments may rely on the doctrine of democratic legitimacy to refuse de jure recognition of the Taliban, here is no binding legal obligation on countries to withhold recognition of the Taliban on the ground that it does not enjoy democratic legitimacy.
- If Russia and China were to formally recognise the Taliban regime due to its effective control of Afghanistan, it would be consistent with international law.

Options for India:

- Considering Taliban's brutal past, its extremist ideology, and absence of democratic legitimacy, India has the right to withhold de jure (legal) recognition of the Taliban regime.

- But, given India's huge investments in Afghanistan and stakes in the South Asian region, India will have to find a way to engage with the Taliban.
- India should adopt a clear policy that it will deal with the Taliban simply because it is the de facto government, not because it is a legitimate one.
- This principle should be followed for bilateral relations and also for multilateral dealings such as within the South Asian Association for Regional Cooperation.

Finding India's voice on Afghanistan:

- The article talks about the need for India to leverage its unique strengths and remain engaged with Afghanistan.

Context:

- In the chaos that has followed the Taliban takeover of Kabul, India has been relatively silent.
- At the UN Security Council and UN Human Rights Council, India has expressed its worries about terrorism, human rights and refugees, but has not mentioned the Taliban itself even once.
- In India, the Government appears to be silent, as thousands of Afghans are fighting for visas.
- The focus is on the task of bringing a few hundred Indian nationals back from Afghanistan.

India's Role in Afghanistan in the Past:

- In the last 20 years, India had been at the forefront of discussions in Afghanistan and on Afghanistan.
- India's role had strengthened in three areas:
 - * Infrastructure building and development assistance, encompassing all 34 provinces of the country;
 - * Building democracy, helping script the Constitution and hold elections;
 - * Educational investment, allowing thousands of young Afghans to study, be trained as professionals and soldiers, and become skilled in India.
- India was the first country that Afghanistan signed a strategic partnership with.
- India is the only country that undertook ambitious projects such as Parliament, the Zaranj-Delaram Highway, and the Chabahar port project in Iran for transit trade, and by far the one country that polled consistently highly among countries that Afghan people trusted.

India's Role in Afghanistan in the Recent Past:

- No other power from the west to the east has considered India's interests while charting its course on Afghanistan.
- India was cut out of several quadrilateral arrangements:
 - * The main negotiations held by the "Troika

plu" of the United States-Russia-China-Pakistan pushed for an inclusive government including the Taliban.

- * The alternative grouping of Russia-Iran-China-Pakistan that formed a "regional arc" (countries that have retained their embassies in Kabul)
- * The connectivity quadrilaterals formed by the U.S. and China, respectively, with Uzbekistan-Afghanistan-Pakistan, that depend heavily on Taliban protection and Pakistani port access.
- Neither India's traditional strategic and defence partner, Russia, nor its fastest growing global strategic partner, the United States, thought it important to include India about the details of their negotiations with the Taliban leadership.

Concerns:

- The first concern is for Indian diplomats, personnel and citizens based in Afghanistan, and over the past year, since it became clear that the U.S. troops would leave the country, India has reduced its diplomatic presence.
- With the Taliban in power, India has other concerns as well. One worry is that groups such as the Lashkar-e-Taiba and the Jaish-e-Mohammad could now have more ungoverned spaces to carry out attacks against India.
- The Taliban's control will also mean a bigger hand for the Pakistani military and intelligence agencies to influence outcomes for the country, which will mandate a much smaller role for Indian development and infrastructure work that has won it goodwill over the past 20 years.
- * In addition, trade through Afghanistan under a Taliban regime would be routed through Karachi and Gwadar, and the Indian investment in the Chabahar port, meant to circumvent Pakistan, may become unviable.
- In addition, there is the threat of growing radicalisation and space for terror groups in India's neighbourhood.

India has three options:

- India can support and supply the Anti-Taliban forces with military supplies, including ammunition and air power, possibly via the Iranian route.
- The second would be to accelerate contacts with the Taliban.
 - * However, this is unlikely to give India much leverage, given the Pakistan factor, as well as the fact that all regional and donor countries have already done so.
- Finally, India can simply wait and watch, until the chaos settles.

Way Forward:

- It is time to accept that India is in need of a new diplomatic strategy.

- It is necessary for Indian government to publicly decry an outcome that has clearly worked against India's interests now.
- India needs to begin by rallying the United Nations, to exert considerable influence in its own interest, and that of the Afghan republic.
- At the UNSC, India must assert its distaste of a Taliban-run Afghanistan that seeks to reverse the gains of the past two decades.
- India must take a leading role in the debate over who will be nominated to the Afghan seat at the UN.
- As Chairman of the Taliban Sanctions Committee (or the 1988 Sanctions Committee), India must use its muscle to ensure terrorists such as Sirajuddin Haqqani and other members of the Haqqani group responsible for brutal suicide bombings on Indian embassies and consulates must not be given any exemptions: on travel, recourse to funds or arms.
- The government must determine the nature of its engagement with the new regime in Afghanistan.
 - * The question would be whether India should convert its secretive back-channel talks with the Taliban and with Pakistan in the past few months into something more substantive.
 - * A more broad-based and consultative process of engaging all political parties would be required.
 - * While not directly dealing with the Taliban, India must ensure stronger communication with those who are dealing directly, including leaders such as former Afghanistan President and former High Council for National Reconciliation chief Abdullah Abdullah, who have lived in India and retain close links, to ensure its interests.

Conclusion:

- India now faces a threat umbrella to its north,

ART AND CULTURE

Art and Culture-Language

1. 'Ancestral Dravidian tongues spoken on Indus Valley sites'

- » Prelims: Important Indus valley sites and major archaeological excavations at these sites; Brahui and Burushaski languages
- A recent publication has provided crucial evidence that ancestral Dravidian languages were possibly spoken by a significant population in the Indus Valley Civilisation.
- This finding is based on common proto-words between the ancestral Dravidian languages and those documented in Indus Valley Civilization.
- This the study claims points to deep linguistic ancestry between the two regions.

Brahui

- Brahui is a northern Dravidian language spoken primarily by the Brahui people in the central part of Balochistan Province, in Pakistan and in scattered parts of Iran, Afghanistan and Turkmenistan.

Burushaski:

- Burushaski is a language isolate spoken by Burusho people who reside almost entirely in northern Gilgit-Baltistan, Pakistan, with a few hundred speakers in northern Jammu and Kashmir, India.

Binjor, Rajasthan:

- Rajasthan's Binjor is considered to be an Indus Valley civilisation site.
- Located in the Ghaggar river (Ghaggar-Hakra River) valley it is widely considered as an Early Harappan and Mature Harappan site (Indus Valley Civilization).
- Archaeologists have come across signs of industrial activity going back at least 4500 years in Rajasthan's Binjor.

Art and Culture - Festivals

2. Wanchuwa festival

- » Prelims: Wanchuwa festival
- » Mains : Regional festivals- their significance both from a cultural as well as economic point of view
- The Wanchuma festival is celebrated by Tiwa tribesmen of Karbi Anglong district of Assam.

- The festival is celebrated to mark good harvest and involves prayers for protection from pests and natural calamities.
- It involves songs, dances and a bunch of rituals performed by people clad in their native attires.

Art and Culture - Art forms

3. Madur mats

- » Prelims: Madur mats- features and associated region; Important handicraft items associated with different regions of India.
- » Mains: Handicrafts- Significance to economic growth and development; Measures needed

Madur mats:

- Madur mats are unique to West Bengal..
- 'Masland' a fine quality madur mat.
- Madur mats are made of natural fibres. Madurkathi is a rhizome-based plant (Cyperus tegetum or Cyperus pangorei) found abundantly in the alluvial tracts of Purba and Paschim Medinipur district of West Bengal.
- Madurkathi was awarded the geographical indication (GI) tag by the Geographical Indication Registry in April 2018.
- About 80% to 90% of the entire workforce engaged in this traditional craft comprise of women.

Context:

- Two women from Sabang in West Bengal have been given the National Handicraft Award in recognition of their outstanding contribution to the development of crafts..

Art and Culture - Art forms

4. Pashmina shawls

- » Prelims: Pashmina shawls- features and associated region; Important handicraft items associated with different regions of India.
- » Mains: Handicrafts- Significance to economic growth and development; Measures needed

Pashmina Shawls:

- Ever since the reign of Emperor Ashok, Kashmir has been known for producing the most exclusive Pashmina Shawls in the world.

- The name Pashmina has been derived from a Persian word "Pashm" meaning a weavable fiber precisely wool. The cashmere wool used for making Pashmina comes from a special breed of Kashmiri goat- Changthangi found in the high altitude regions of the Himalayas.
- * The fine variant of spun cashmere is derived from the animal-hair fibre forming the downy undercoat of the Changthangi goat.

Context:

- A number of measures have been introduced to promote hand-made Pashmina shawls in Kashmir..

SCIENCE AND TECHNOLOGY

Science and Technology- Developments and their Applications and Effects in Everyday Life

1. U.S. lab makes headway in nuclear fusion energy

- » Prelims: Nuclear fusion technology- process and associated terminologies; Tokamak.
- » Mains: Significance of nuclear fusion technology; Challenges in harnessing nuclear fusion energy

Context

- Breakthrough in Nuclear fusion technology achieved at the U.S. National Ignition Facility (NIF).

Background:

Nuclear fusion technology:

- Nuclear fusion is a reaction in which two light atomic nuclei are combined to form a heavier atomic nucleus and subatomic particles. The difference in mass between the reactants and products is manifested as energy as explained by Einstein's equation ($E=mc^2$), which says that mass and energy can be converted into each other.
- If scientists develop a way to harness energy from fusion in machines on Earth, it could be an important method of energy production.
- Nuclear fusion is a clean and green route to producing energy.
 - * A fusion reactor is carbon neutral, it does not create carbon dioxide.
 - * Nuclear fusion unlike Nuclear fission does not give out any remnant radioactive waste products
 - * The fuel used for Nuclear fusion is easily available.

Deuterium-tritium (DT) fusion reaction:

- Fusion can involve many different elements in the periodic table. However, researchers working on fusion energy applications are especially interested in the deuterium-tritium (DT) fusion reaction.
 - * DT fusion reaction releases much more energy than most fusion reactions and they occur at lower temperatures than other elements.
- Deuterium (D) and tritium (T) fusion reaction produces a helium nucleus (or alpha particle) and a high energy neutron. The neutrons from DT reactions are harvested to produce energy.

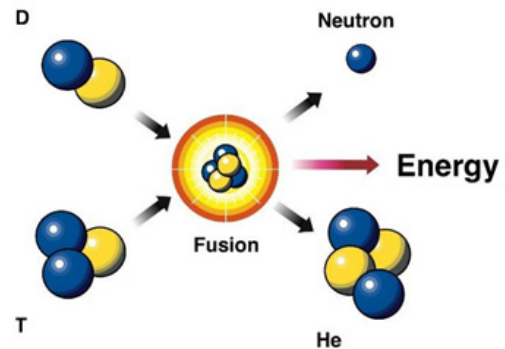


Image Courtesy: Energy.gov

Challenges in harnessing nuclear fusion energy:

- Although nuclear fusion has the potential to offer almost unlimited clean energy, harnessing it is extremely difficult. Several steps remain before a viable nuclear fusion reactor can be realised.
 - * Plasma reaching temperatures of 150 million degrees Celsius needs to be produced for fusion to be initiated. This temperature needs to be maintained to sustain the fusion reaction as well. This leads to material constraints given the fact that there are very limited materials which can sustain such high temperatures for sustained periods of operation. Also such high temperatures would also necessitate much higher cooling system capability as compared to that observed in Nuclear fission reactors.
 - * Even though nuclear fusion gives rise to large energy output, considering the fact that a large energy input is necessary to maintain the conditions necessary for nuclear fusion, the net energy output continues to remain low or even negative based on current technological developments. This makes nuclear fusion technology unviable for energy generation based on current technological advancement.
 - ◇ To be functional and financially viable, a nuclear fusion reactor has to produce an output that is at least tens of times the input energy.
 - * The technology to convert the neutron energy into electricity has to be developed. Means have to be found to extract the neutron energy as heat and produce electricity.

Details:

- An experiment at the U.S. National Ignition Facility (NIF) has for the first time in a controlled laboratory setting has produced nearly as much energy as was supplied to initiate the reaction.

- Also unlike previous attempts, the hotspot was able to ignite a self-sustaining chain reaction, fusing more hydrogen atoms together and continuing the process of energy generation.

Experiment:

- The experiment involved an inertial fusion system (laser driven fusion system).
- * A tiny pellet of the fuel (deuterium and tritium- heavier isotopes of hydrogen) was placed in a cylindrical thumbnail-sized vessel, known as a hohlraum that had holes on both faces. Laser beams were directed through the holes to strike the walls of the hohlraum. This caused the hohlraum to emit x-rays which, in turn, impinged on the pellet and compressed it. The heated core of the pellet reached 100 million degrees temperature to initiate the fusion reaction.
- Experts have hailed the breakthrough in maintaining the sustainability of this reaction and achieving the energy break-even as a giant step toward the holy grail of Nuclear fusion energy research.

Additional information:

Tokamak:

- A tokamak is a device which uses a powerful magnetic field to confine plasma in the shape of a torus. The tokamak is one of several types of magnetic confinement devices being developed to produce controlled thermonuclear fusion power.

Stellarator:

- A stellarator is a plasma device that relies primarily on external magnets to confine a plasma.

Awareness in the field of Space

2. Earth observation satellite, EOS-3

- » Prelims: GISAT series of satellites; Different types of orbits and launch vehicles-GSLV and PSLV; Important space missions of India- NISAR, Aditya-1 mission.
- » Mains: Cryogenic propulsion technology- Potential and challenges

Context:

- The GSLV-F10 rocket launched with the Earth Observation Satellite EOS-3 has failed in its mission due to a performance anomaly.

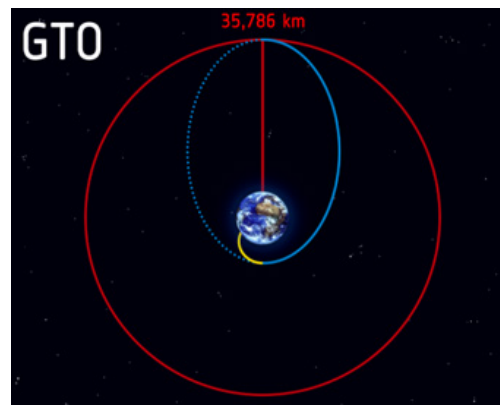
Background:

EOS-03 satellite:

- Formerly known as the Geo Imaging Satellite-1 or GISAT-1, EOS-3 was the first state-of-art agile

Earth Observation Satellite intended to be placed in a geo-synchronous orbit around the Earth.

- * EOS was intended to be positioned in the geostationary transfer orbit initially, and then supposed to reach the final geostationary orbit based on the satellites own propulsion system.
- ◊ The geostationary transfer orbits have a distance from Earth of 170 km at closest approach and about 35,975 km at furthest approach which is close to the height of the geosynchronous orbit.



- EOS-03 is capable of imaging the entire country four to five times every day.
- Being an earth observation satellite, EOS-03 was meant to provide almost real-time images of large parts of the country and would have been used for monitoring water bodies, crops, vegetation, forest cover, and natural disasters such as floods and cyclones. The EOS-03 allowing for quick monitoring of natural disasters could have helped provide warnings for natural disasters such as cyclones, cloudbursts, thunderclouds etc.

GSLV:

- The GSLV expands to geosynchronous satellite launch vehicle.
- The GSLV Mark II is the largest launch vehicle built by India and is capable of longer ranges and higher load carrying capacity. Hence GSLV are used for launching the larger satellites to higher orbits.
- The GSLV is basically a three-stage vehicle with solid, liquid and cryogenic stages respectively.
 - * The second liquid fuel powered stage is powered by the Vikas engine.
 - * The third stage based on cryogenic rocket engine uses liquid hydrogen and liquid oxygen.
- ◊ The cryogenic stage is supposed to be more efficient and provides greater thrust to propel heavier rockets like GSLV that are designed to carry bigger payloads into space. But these are also more complex than conventional liquid and solid propellants,

because of the extremely low temperatures, hundreds of degree Celsius below zero, that has to be maintained.

Details:

- The performance of the first and second stages was normal. However, a technical anomaly prevented the ignition of the GSLV-F10 rocket's cryogenic upper stage
- GSLV-F10 was ISRO's eighth flight with indigenous cryogenic engine and 14th GSLV flight.
- This is the first launch failure for ISRO since 2017 after a run of 14 consecutive successful launches.

India's indigenous cryogenic engines:

- GSLV-F10 was a GSLV Mk-II, where though the cryogenic engine is indigenously produced it is largely based on the Russian cryogenic engine and has been reverse engineered.
- GSLV Mk-III uses an indigenously-developed and produced cryogenic engine in the upper stage. The cryogenic engine used in GSLV Mk-III, called CE20, has been the result of over three decades of research and development, starting from scratch, and uses a different process to burn fuel. It is closer to the designs used in the European Ariane rockets.

Concerns:

- The failure of this mission is worrying because several important missions in the pipeline: Aditya-L1, the Gaganyaan mission and NISAR mission slated in the coming years would have to be launched using the GSLV rocket.
- * Aditya - L1 would be the first Indian mission to study the Sun. It would be inserted in a halo orbit around the L1 (Lagrangian point 1), which is 1.5 million km from the Earth. A Satellite placed in the halo orbit around the Lagrangian point 1 (L1) of the Sun-Earth system has the major advantage of continuously viewing the Sun without any occultation/ eclipses.
- * The Gaganyaan Programme envisages undertaking the demonstration of human spaceflight to Low Earth Orbit (LEO) in the short-term and will lay the foundation for a sustained Indian human space exploration programme in the long run.
- * NISAR mission is a collaboration between NASA and ISRO for a joint earth-observation satellite. The NISAR mission aims to measure the Earth's changing ecosystems and dynamic surfaces to provide information about biomass, natural hazards, sea-level rise and groundwater.

Awareness in the field of Space

3. Gyrochronology

- » Prelims: Gyrochronology.
- It is one of the methods used to estimate the age of stars.
- There is a relationship between rotation rate and age, the rotation rate of a star slows down with age. When the stellar wind escapes from the star, it carries with it a part of the angular momentum of the star, which results in its slowing down.

Awareness in the field of Space

4. Indian astrophysicists spot rare merger of three jumbo black holes

- » Prelims: Indian space observatory ASTROSAT; MUSE telescope.

Context:

- Indian researchers from the Indian Institute of Astrophysics (IIA) have discovered three supermassive black holes from three galaxies merging together to form a triple active galactic nucleus, a compact region at the centre of a newly discovered galaxy that has a much-higher-than-normal luminosity..

Note:

- Many Active Galactic Nuclei (AGN), or supermassive black hole at the centre of a galaxy, pairs have been detected in the past, but triple AGN are extremely rare, and only a handful have been detected before using X-ray observations.

Details:

- All three merging black holes were part of galaxies in the Toucan constellation.
- The study used data from:
 - * The Ultraviolet Imaging Telescope (UVIT) on board the first Indian space observatory ASTROSAT
 - * The European integral field optical telescope called MUSE mounted on the Very Large Telescope (VLT) in Chile
 - * Infrared images from the optical telescope (IRSF) in South Africa.

Merging of supermassive blackholes:

- It is explained that if two galaxies collide, their black holes will also come closer by transferring the kinetic energy to the surrounding gas.
- The distance between the black holes decreases with time until the separation is around one parsec (3.26 light-years). The two black holes, however, are then unable to lose any further kinetic energy to get even closer and merge. This is known as the final parsec problem.

- But the presence of a third black hole can solve this problem.
- The two can come closer when another black hole or a star passes by and takes away some of their combined angular momentum.
- Thus, the dual merging black holes merge with each other in the presence of a third.

Awareness in the field of Bio-technology

5. End-to-end genome sequencing

- » Prelims: Human DNA bases; Human genome project.
- » Mains: Potential applications of genome sequencing.

Context:

- Scientists from the Telomere-to-Telomere (T2T) Consortium have reported the most complete sequencing of the human genome until now.

Background:

Human genome:

- The human genome is the complete set of nucleic acid sequences for humans, encoded as deoxyribonucleic acid (DNA) within the 23 chromosome pairs in cell nuclei.
- The DNA consists of a doublestranded molecule, each of which is built up by four bases – adenine (A), cytosine (C), guanine (G) and thymine (T). Every base on one strand pairs with a complementary base on the other strand (A pairs only with T, and C only with G).

Human Genome Project:

- The Human Genome Project (HGP) was the international, collaborative research program whose goal was the complete mapping and understanding of all the genes of human beings.
- The Human Genome Project gave the first complete human genome sequence in 2003.

Details:

- The study has added around 200 million new base pairs to the last draft of the human genome that was published in 2013.
- The study has discovered 115 new protein-coding genes.
 - * Protein-coding genes are DNA sequences that get transcribed on ribonucleic acid (RNA) as an intermediate step before protein synthesis. These proteins define the characteristics of the person. These proteins carry out the instructions encoded in the genes.
- The total size of the genome they have sequenced is close to 3.05 billion base pairs.

Lacunae:

- Around 0.3% of the total genome may still have errors.
- Among the sex chromosomes, only the X chromosome has been sequenced. Hence the sequence has no information about the Y chromosome.

Significance:

- The new findings will help provide a better understanding of the human body.
- The development marks a significant technological feat. The technology used by the Telomere-to-Telomere Consortium used sequencing technology that could scan 20,000 base pairs at one go as against the few hundred pairs previously.
- The genome draft will form a standard for comparison in future sequencing attempts.

Awareness in the field of Bio-technology

6. Human trials for new HIV vaccine

- » Prelims: mRNA technology
- » Mains: mRNA technology-significance and challenges

Context:

- Moderna company has indicated that it may begin human trials for a vaccine for HIV (human immunodeficiency virus) soon, employing the same mRNA platform that it has used in its COVID-19 vaccine.

Background:

Treatment of HIV-AIDS:

- While treatment with Anti-Retroviral Therapy has significantly improved the longevity of those with HIV-AIDS, this is a lifelong treatment.
 - * According to the World Health Organization, there are around 37.7 million living with HIV as of 2020.
- Traditional vaccine approaches have not worked for HIV, and in fact, some of them have gone on to worsen infection.
- The quest to develop an HIV vaccine is considered among the holy grails of scientific research.

mRNA technology:

- Messenger ribonucleic acid (mRNA) plays a vital role in human biology, specifically in a process known as protein synthesis.
 - * mRNA is a single-stranded molecule that carries genetic code from DNA in a cell's nucleus to ribosomes, the cell's protein-making machinery.

- Unlike the traditional pharmaceutical approach which used small molecules or the traditional biologics which used recombinant proteins and monoclonal antibodies for treatment, mRNA medicines are sets of instructions. And these instructions direct cells in the body to make proteins to prevent or fight disease.

Details:

- The vaccine designated formally as mRNA-1644, is made in a way to stimulate the B cells of the immune system.
 - * The B cells are a class of white blood cells that produce what is referred to as broadly neutralising antibodies (bnAbs).
- These antibodies attach to the surface proteins of HIV and disable them by accessing key but hard-to-reach regions on the virus and deactivate them.

Significance of the mRNA approach:

- Using mRNA as a drug opens up a breadth of opportunities to treat and prevent disease. mRNA medicines can go inside cells to direct protein production, something not possible with other drug approaches. Thus it opens up immense potential to treat or prevent diseases that today are not addressable – potentially improving human health and impacting lives around the world.
- RNA-based immunogens in vaccines do not involve the use of a live virus, can be made relatively easily, can be quickly deployed and safely administered.

Challenges associated with mRNA approach:

- The instability of mRNA vaccines is a challenge.
- A major challenge with m-RNA vaccines is that they are sensitive to temperature in storage, and is a challenge for arranging for the necessary cold chain infrastructure in resource starved developing countries.

Conclusion:

- The success of m-RNA COVID vaccines in reducing hospitalisation and mortality has led to confidence in the underlying m-RNA platform and its potential needs to be studied further.

Awareness in the field of Bio-technology

7. Plasmid DNA vaccine, ZyCoV-D

- » Prelims: ZyCoV-D vaccine; Plasmid DNA vaccine technology
- » Mains: Plasmid DNA vaccine technology- Significance and limitations

Context:

- ZyCoV-D vaccine- the world's first plasmid DNA vaccine for human use has received Emergency Use Authorization in India.

Working of the vaccine:

- A piece of DNA encoding the antigen (part of the disease-causing pathogen that induces an immunity response from our bodies) is inserted into a bacterial plasmid and injected into humans.
 - * A plasmid is a small, circular, double-stranded DNA molecule that is distinct from a cell's chromosomal DNA. Plasmids naturally exist in bacterial cells, and they also occur in some eukaryotes
- When the vaccine is injected into the human body, the vaccine produces that particular part of the virus and stimulates the immune system to generate antibodies and T-cells immunity against the virus.

Significance of plasmid DNA vaccines:

- DNA vaccines are also known as third-generation vaccines. Plasmid DNA has huge potential as platform technologies that could be used for a variety of applications ranging from prophylaxis to therapy and from personalized medicine to global health solutions.
- The technology can be used to quickly develop vaccines with fairly generic manufacturing processes. Hence they would be cost effective in development of vaccines.
- The specified DNA piece disintegrates after it has completed its action and thus is unable to interfere with the genetic composition of humans.
- Given that the vaccine does not use any part of the virus they are considered relatively safer given their relatively low reactogenicity. There is less risk for infection
- The plasmid vaccines have good genetic stability and are also easy to administer.

Limitations of DNA Vaccine:

- There are certain possible side effects of using DNA Vaccines.
 - * Risk of affecting genes controlling cell growth
 - * Possibility of tolerance to the antigen
- Also the effectiveness of DNA vaccines is limited to protein immunogens.

Science and Technology-Achievements of Indians in science and technology; indigenization of technology and developing new technology

8. New technique to study ultrasmall particles in cells

- » Prelims: Absorption spectroscopy; Abbe criterion
- » Mains: Significance of the new methodology and its potential applications

Context:

- Researchers from IIT Madras and IISER Kolkata have developed a new method to detect minute quantities of chemicals in solution.

Background:

Absorption spectroscopy:

- Absorption spectroscopy refers to spectroscopic techniques that measure the absorption of radiation due to its interaction with a sample.
 - * The sample absorbs energy, i.e., photons, from the radiating field.
- The intensity of the absorption varies as a function of frequency and also the absorbing medium.
- Dark lines are seen in the observed absorption spectrum of the light passed through the substance, which correspond to the wavelengths of light absorbed by the intervening substance and are characteristic of the elements present in it.
- Hence, Absorption spectroscopy is employed as an analytical tool to determine the presence of a particular substance in a sample and also to quantify the amount of the substance present.
- Absorption spectroscopy is performed across the electromagnetic spectrum. Infrared and ultraviolet-visible spectroscopy are particularly common in analytical applications.

Details:

- The new method uses a variation of absorption spectroscopy.
- The technique exploits the quantum emission properties of erbium-doped sodium yttrium fluoride nanoparticles.
 - * These tiny, nano-sized particles can absorb light being shone on them and re-emit red, blue and green light.
- The emission from these nano particles would be absorbed by substances in the sample. An analysis of the absorption spectrum would reveal the nature of the absorbing material.

Significance of the new methodology:

Surpasses the limits of conventional absorption spectroscopy:

- The new method surpasses the systemic limits imposed by conventional absorption spectroscopy based on the Abbe criterion.
 - * The Abbe criterion sets a natural limit on the size of the object being studied using absorption spectroscopy. According to this criterion, the size of the observed object has to be at least of the order of the wavelength of the light being shone on it.
- Unlike the conventional absorption spectroscopy technique which requires a minimum of about a cubic centimetre of the sample for the analysis, the new method developed can help detect even minute amounts of dissolved substances. Very small molecules almost ten-millionth of a mm in diameter can also be detected using this methodology.

Potential applications:

- There are many potential applications.
 - * This technique can be used to study the insides of cells and detect even minuscule quantities of substances present there.
 - * cules, see an absorption spectroscopy of a single DNA or protein molecule.

Science and Technology-Achievements of Indians in science and technology; indigenization of technology and developing new technology

9. Directed Energy Deposition Process

- » Prelims: Directed Energy Deposition (DED) process and its applications

Context:

- Indian scientists have for the first time repaired aero-engine components through the Directed Energy Deposition (DED) process.

Details:

- The scientists from the International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI) have indigenously made powders suitable for the additive manufacturing process called the Directed Energy Deposition process.
- They made the powder using inert gas atomizer available at ARCI by melting unused scrap material.
- Utilising this, ARCI is developing the Laser-DED process for the repair of aero-engine components made of Ni-based superalloy.

Significance:

- Ni-based superalloys are widely used in aero-engine components.
- Despite having exceptional properties, they are prone to damage due to extreme operational conditions.
- Manufacturing defects during the casting or machining process are another major cause of rejection, and tons of such unused components are scrapped due to minor defects.
- This development can significantly reduce repair costs and overhaul time.

What is the Directed Energy Deposition (DED) process?

- DED process is an emerging additive manufacturing or 3D printing technique.
- It allows for the creation of objects by melting the material in powder or as a wire with a focused energy source as it is deposited by a nozzle on a surface.

- In a DED printer, the nozzle head moves around a fixed object for depositing the material in specific locations.
- Despite it being possible to build full parts with DED techniques, they are typically employed for repairing or adding additional material to existing objects.
- Directed Energy Deposition (DED) is basically a 3D printing method which uses a focused energy source, such as a plasma arc, laser or electron beam to melt a material which is simultaneously deposited by a nozzle.
- The DED process is known by other names, including Laser Engineered Net Shaping (LENS), Direct Metal Deposition (DMD), Electron Beam Additive Manufacturing (EBAM), Directed Light Fabrication, and 3D Laser Cladding, depending on the exact application or method used.

DEFENCE AND INTERNAL SECURITY

Defence Equipment

1. INS Vikrant

- » Prelims: India's first indigenous aircraft carrier
- India's first indigenous aircraft carrier (IAC-1) would be named Vikrant after the first carrier operated by the Indian Navy.
- It has been designed by the Directorate of Naval Design and built by the public sector shipbuilder Cochin Shipyard.
- Its degree of indigenisation is about 76%.
- Currently, Vikramaditya is the only aircraft carrier in service with the Indian Navy.

Context:

- Commencement of sea trials of indigenous aircraft carrier 'Vikrant'.

Defence Equipment

2. Russian stealth frigates

- » Prelims: Frigates, corvettes and destroyers

Context:

- Chief executive officer of United Shipbuilding Corporation has stated that the first of two additional Krivak class stealth frigates being built by Russia is expected to be delivered to India in the middle of 2023'.

Background:

- In October 2016, India and Russia signed an Inter-Governmental Agreement (IGA) for four Krivak or Talwar class stealth frigates — two to be procured directly from Russia and two to be built by Goa Shipyard Ltd. (GSL) via technology transfer.
- * The Navy currently operates six Krivak class frigates.

Frigates:

- A frigate is a type of warship.
- * The warships are classified differently based on tonnage, weapons, mission definition and capabilities.
- Frigates are naval vessels intermediate between corvettes and destroyers.
- * Destroyers are much smaller than battleships but larger than frigates. A Destroyer is heavier,

carries more firepower, and is slightly faster than a Frigate.

- * A corvette is a very small class of combat ship. Frigates are larger than corvettes and have a fair mix of offensive and defence capabilities.
- Frigates are also used for patrol missions and to escort larger ships. Frigates are possibly the smallest "blue water" ocean-spanning warship.
- As of February 2017, 14 guided-missile frigates from four different classes – Shivalik, Talwar, Brahmaputra, and Godavari – are operated by the Indian Navy.

Details:

- The Krivak class of frigates are capable of 30 knots speed and have a displacement of about 4,000 tonnes.
- Brahmos supersonic cruise missile is part of its arsenal.
- Due to the use of stealth technologies and a special hull design, the ships have reduced radar cross section as well as electromagnetic, acoustic and infrared signatures.

Security challenges-Drug Trafficking

3. Agencies brace for sharp rise in drug trafficking

- » Prelims: Colombo declaration; Golden crescent and Golden triangle
- » Mains: Factors that could be aiding the spurt in drug trafficking; associated concerns for India

Context:

- Taliban assert control over Afghanistan.'

Details:

- With the Taliban's rise to power in Afghanistan, the Indian anti-drug law enforcement agencies are suspecting a steep surge in cross-border trafficking of heroin and crystal methamphetamine.
- * Heroin is a depressant and is manufactured from opium.
- * Methamphetamine is a stimulant that is mainly used as a recreational drug. The drug is prepared using ephedrine extracted from Ephedra plants.
- This projection is based on the following recent reports.
- * There have been reports of an increase in

drug trafficking in the region, mostly through maritime routes. Several seizures of Afghan-origin heroin and methamphetamine in the high seas of the region have been made in the recent past.

- * According to the latest World Drug Report of the United Nations Office on Drugs and Crime, Afghanistan reported a 37% increase in the extent of land used for illicit cultivation of opium poppy during 2020 compared with 2019.
- ◇ Afghanistan accounted for 85% of the global opium production in 2020.
- ◇ The Golden Crescent region of South Asia—comprising Afghanistan, Iran and Pakistan—is a principal global site for opium production and distribution.



- * Iran too has reported an increase in the proportion of Afghan-origin methamphetamine seizure over the years.

Contributing factors:

Taliban's dependency on drug money:

- Drug money has been a major source of revenue for the Taliban. Given the weak economic fundamentals of the Afghanistan economy, the Taliban will continue to be reliant on drug money to fund its operations and maintain influence among its cadres.'

Economic disruption caused by the pandemic:

- The economic crisis brought on by the COVID-19 pandemic had increased the appeal of illicit poppy cultivation in Afghanistan, given the high returns from its cultivation.
- * The 2020 World Drug Report of the United Nations Office on Drugs and Crime (UNODC), cautions that the economic hardship caused by the pandemic, could lead to an increase in the number of people resorting to illicit activities linked to drugs to make a living.
- Fewer countries are taking part in joint drug operations due to budgetary problems.

Additional information:

Colombo declaration:

- The Colombo declaration was adopted in 2016 by 18 littoral states of the Indian Ocean Region (IOR), to make the region a Drug-Free Zone.
- It emphasizes the need for cooperation amongst the coastal areas in the form of sharing information and intelligence in narcotic drug trafficking, providing mutual legal assistance and enforcing maritime law.

Security challenges-Terrorism

4. Anti India terror organizations finding base in Afghanistan

- » Mains: Security concerns for India in the light of Taliban takeover of Afghanistan; Recommendations for tackling these challenges

Context:

- As per intelligence sources, post the Taliban's capture of Afghanistan capital Kabul, a large number of fighters belonging to the Islamic State (IS), Jaish-e-Mohammed (JeM) and Lashkar-e-Taiba (LeT) have entered the city in the last few days.'

Details:

- The foreign terrorists have believed to have entered the city carrying the Taliban flag and are believed to be operating in different parts of the city outside of the control of the Taliban.
- * As per the Doha U.S. - Taliban agreement, the Taliban have committed to preventing terrorist groups from operating in Afghanistan and are thus expected to evict the foreign terrorist groups from Kabul in the coming days.
- There is the potential of possible clashes that may take place between these terror groups and the Taliban if the Taliban try to dislodge the foreign terrorist groups militarily from Kabul. This might lead to further violence in Afghanistan. Even though the Taliban has won the battle, the security situation continues to be precarious, and Afghanistan could descend into chaos.

Security concerns for India:

- Subsequent to the Taliban takeover of Afghanistan, there have been concerns raised over the negative impact of this development on India's internal security.'

Afghanistan as a base for anti-India terror organizations:

- There are concerns that the foreign terrorist groups trying to set base in Kabul may indulge in operations on their own. According to security experts, this development does not bode well for India given the precedents.

- * In the past, anti-India elements have often used the ungoverned border areas between Pakistan and Afghanistan near the Durand Line to run terrorist training camps.

- * LeT cadres continue to operate in the Kunar, Nangarhar and Nuristan provinces, while JeM fighters are active in the Ghazni, Kandahar and Helmand provinces of Afghanistan.

- Despite some assurances from the Taliban leadership on the issue of terrorism, considering the character of the Taliban as an organisation, India's security concerns will persist.

- The availability of terrorist safe havens may significantly complicate Indian counterinsurgency operations in Kashmir. Indian security officials fear that the emergence of new sanctuaries could embolden terrorist groups currently operating in the disputed region. Such staging grounds could lead to increased violence in the Jammu and Kashmir.

Linkage between Taliban and anti-India terror outfits:

- Anti-India terror outfits such as the Lashkar-e-Taiba (LeT) and the Jaish-e-Mohammed (JeM) have extended active support to the Taliban over the years.

- * The JeM has been deploying senior commanders and trained cadres for Taliban operations. It has also been providing refuge to the cadre of the Taliban.

- * The LeT has also been a major source of armed men for the Taliban and the Haqqani Network against the U.S.-led forces in Afghanistan for the past several years.

- The JeM was founded by Masood Azhar in 2000, after his release from an Indian prison along with two others in exchange for passengers on board the hijacked Indian Airlines flight IC-814. The hijacked plane had been taken to the then Taliban-controlled Kandahar.

- LeT was founded in the Kunar province of Afghanistan in 1987 by Hafiz Saeed and others.

Haqqani network link:

- The LeT and JeM leadership have been in contact with top Taliban functionaries through the Haqqani Network. Following the Taliban takeover, the Haqqani network group is now controlling security for Kabul. This leads to the high possibility of LeT and the JeM operatives getting a base at Kabul and support from the Taliban.

Taliban and al-Qaeda link:

- As per a UNSC report in June, the Taliban and al-Qaeda continue to be closely aligned, with Al-Qaeda elements believed to be residing in at least 15 Afghan provinces.

- Al-Qaeda in the Indian Subcontinent also operates under the Taliban umbrella from Kandahar, Helmand and Nimruz provinces.

Close link between Taliban and Pakistani establishment:

- The close links between the Pakistani establishment and the Taliban could lead to severe security challenges for India. The trained and equipped fighters of the Taliban under Pakistani influence could be diverted towards Indian borders and India could become the target of terror attacks.

Destabilization of Pakistan:

- There is the threat of the rise of Taliban leading to destabilisation in Pakistan and could possibly lead to the acquisition of nuclear weapons by terror organizations.

Prisoner release:

- Among the hundreds of prisoners released from Afghan prisons subsequent to the Taliban takeover, includes many from the LeT and the JeM outfits.

Chinese relationship with the Taliban:

- China's apparent willingness to work with the Taliban could significantly add to the woes of Indian security planners.

- China's close relationship with the Taliban could expand its footprint in the region at the cost of India.

- China is seeking to fill the power vacuum left by the withdrawal of the U.S. from Afghanistan by increasing its ties to the Taliban. The evolving axis between China, Pakistan and Taliban controlled Afghanistan carries geopolitical and strategic consequences that will reverberate for decades and this does not augur well for India's security interests

Recommendations for India:

- As a precautionary measure, India should scale up security measures in Jammu and Kashmir and remain vigilant about any threat to its security along the borders.

- India should also evaluate the possibility of engaging with the new Taliban regime to secure its interests.

- India is currently chairing the crucial Taliban and Libya sanction committee and the counter-terrorism committee in the UNSC. India should use this opportunity to keep a tab on the Taliban and work to reduce uncertainty for Afghans and the region.

Cyber Security challenges

5. Ransomware

- » Prelims: REvil
- » Mains: Challenges posed by ransomwares and measures for tackling them

Context:

- Ransomware Evil, REvil or Sodinokibi, a ransomware-as-a-service (RaaS) operation has emerged as one of the latest ransomware operators of concern.'

Background:

Ransomware:

- Ransomware is malware that employs encryption to hold a victim's information at ransom. A user or organization's critical data is encrypted so that they cannot access files, databases, or applications. A ransom is then demanded to provide access.
- Ransomware uses asymmetric encryption. This is cryptography that uses a pair of keys to encrypt and decrypt a file. The public-private pair of keys is uniquely generated by the attacker for the victim, with the private key to decrypt the files stored on the attacker's server.

Details:

- The operators of the REvil platform provides adaptable encryptors and decryptors, infrastructure and services for negotiation communications, and a leak site for publishing stolen data when victims don't pay the ransom demand.
- REvil and its affiliates have pulled in a payment of \$2.25 million during the first six months of 2021 including from some high profile targets like JBS USA Holdings and Brazilian medical diagnostics firm, Grupo Fleury.

Challenges:

Increasing Ransomware attacks:

- Based on previous trends, cyber experts warn that ransomware is going to be the major cybercrime in the coming days.
- * At least 16 different ransomware variants are now exploiting victims by encrypting and stealing/threatening to expose data.
- * Ransomware has been generating billions of dollars in payments to cybercriminals and inflicting significant damage and expenses for businesses and governmental organizations.

Increased digitization and the challenges therein:

- The quantum of data created and replicated experienced very high growth in 2020 due to a dramatic increase in the number of people

working, learning, and entertaining themselves from home. This data is vulnerable to ransomware attacks.

Vulnerability of critical sectors:

- Healthcare has been the most targeted and vulnerable sector in 2020 and the sector continues to be under further attacks by RaaS models.

Increasing sophistication:

- Cyberthreats are evolving rapidly and becoming more sophisticated and complex with the technology being used for ransomware attacks keeping pace with protection technology.
- Attackers are leveraging real-world events to deceive individual victims, enterprises and governments all over the globe.

Recommendations:

Use of deep technology to counter cyber threats:

- An integrated platform using ML (machine learning) and AI (artificial intelligence) can provide the necessary impetus to cybersecurity against ransomware attacks.
- Using AI, the frequently observed threat data and multiple threat feeds can be automated and left to ML algorithms that can decipher attack patterns.
- Quantum computing can be employed to hasten the computing speed of the process to help increase the capacity of such platforms.

Institutions

6. CERT-In

- » Prelims: CERT-In- Functions

Context:

- The Indian Computer Emergency Response Team (CERT-In) observed more than 6.07 lakh cybersecurity incidents in the first six months of 2021, of which about 12,000 were related to government organisations.'

CERT-In:

- Computer Emergency Response Team (CERT-In) is the nodal agency operational since 2004 for responding to computer security incidents. CERT-IN was established in 2004 under Section (70B) of the Information Technology Act, 2000.
- It is an office within the Ministry of Electronics and Information Technology of the Government of India.
- CERT-In has been designated to perform the following functions in the area of cyber security:
 - * Collection, analysis and dissemination of

information on cyber incidents.

- * Forecast and alerts of cyber security incidents
- * Emergency measures for handling cyber security incidents
- * Coordination of cyber incident response activities.
- * Issue guidelines, advisories, vulnerability notes and whitepapers relating to information security practices, procedures, prevention, response and reporting of cyber incidents.
- * Such other functions relating to cyber security as may be prescribed.

Government Initiatives

7. iDEX

- » Prelims: iDEX framework; DIO
- » Mains: Significance of defence indigenization
- The Innovations for Defence Excellence (iDEX) framework aims at the creation of an ecosystem to foster innovation and technology development in Defence and Aerospace by engaging industries including MSMEs, start-ups, individual innovators, R&D institutes & academia.
- It provides them grants/funding and other support to carry out R&D which has good potential for future adoption for Indian defence and aerospace needs.
- iDEX will be funded and managed by the 'Defence Innovation Organization (DIO)'.
- The programme is meant to foster innovation and technology development in the domestic defence and aerospace sectors of India and achieve self-reliance.

Context:

- Defence Minister launched the 5th edition of the Defence India Start-up Challenge (DISC) under Innovations for Defence Excellence - Defence Innovation Organisation (iDEX-DIO).

Defence technology

8. Advanced Chaff Technology for Indian Air Force

- » Prelims: Chaff technology
- » Mains: Significance of the new technology

Chaff technology:

- Chaff are strips of metal foil released in the air.
- A chaff is primarily an electronic counter-measure technology used by militaries worldwide to protect high-value targets such as fighter jets or naval ships from radars and radio frequency (RF) guiding mechanisms of the enemy missiles.

- The chaff deployed in the air reflect as multiple targets for the missile guidance systems, thus misleading the enemy radars or deflecting adversary missiles.
- Chaff is a critical defence technology and its importance lies in the fact that very less quantity of chaff material deployed in the air acts as decoy to deflect enemy's missiles for ensuring safety of the fighter aircraft.

Context:

- Development of the chaff technology by the Defence Research and Development Organisation (DRDO)

Security challenges in North east India

9. North Eastern states border disputes

- » Mains: Border disputes in North east India and associated concerns

Context:

- Findings of the New Delhi-based rights group on the impact of the border disputes among the North eastern states.

Background:

Border disputes in North-eastern India:

- Border disputes between various states in Northeast India have been recurring since the 1960s. Assam-Mizoram, Assam-Nagaland, Assam-Arunachal Pradesh and Assam-Meghalaya border disputes have been the most prominent ones.
- Almost all these border disputes have their origins in colonial times and reflect the consequences of the British policy of creating and recreating boundaries for administrative convenience based on annexation and exploration of territories in the region.
- These disputes emerged after states such as Nagaland, Meghalaya, Arunachal Pradesh and Mizoram were carved out of undivided Assam.
 - * Meghalaya, Mizoram and Nagaland were carved out of Assam between 1963 and 1972. Arunachal Pradesh, formerly known as North East Frontier Agency, was annexed to Assam until it became a Union Territory in 1972.

Concerns:

- The inter-state border disputes in the Northeast have persisted for long. Several attempts at resolving these disputes have been unsuccessful. The recommendations of the Union government or the Supreme Court appointed commissions have been rejected by the concerned state governments.
- Non-resolution of these disputes has given rise to strong community sentiments among states

concerned and resultantly vitiated the inter-state relations. The border disputes have become highly politicised. This could prove disastrous for a region whose security situation remains jeopardised by insurgency.

Details:

- As per the report 157 people have been killed in border disputes across the Northeast since 1979. Also around 361 have been injured and 65,000 displaced.

Recommendations:

- The need of the hour is to shape public opinion for peaceful borders and redouble efforts for a political solution to these decades-old disputes.
- The states should maintain status quo till the disputes are resolved. There should be joint enforcement of law and order along the line of de facto control and biometric documentation of the residents living within the disputed areas for prohibiting settlement in new areas.

Miscellaneous

10. Operation Blue Freedom

» Prelims: Operation Blue Freedom

Context:

- Union Minister for Social Justice and Empowerment flagged off 'Operation Blue Freedom' to create a World Record at Siachen Glacier.

Details:

- Operation Blue Freedom is a pioneering expedition under which a team of people with disabilities from across the country undertook an expedition to Siachen Glacier to create a new World Record for the largest team of people with disabilities to reach the world's highest battlefield.
- The team of people with disabilities, trained by 'Team CLAW', a team of Armed Forces veterans, undertook this expedition till Kumar Post (Siachen Glacier) to create the new world record.
 - * Kumar post is located at an altitude of about 15,632 feet.
- Operation Blue Freedom was founded by Team CLAW in 2019 as a movement to express the spirit and ability of people with disabilities.
- Team CLAW is in the process of setting up centres across the globe where-in Special Forces Veterans and People with Disabilities are merging in action for creating a better life experience, for not only persons with disabilities but the non-disabled as well.
- They teach and train disabled people life skills and also design and implement sustainable

large-scale employment solutions.

About Team CLAW:

- Team CLAW (Conquer Land Air Water) is a team of ex-Indian Special Forces commandos.
- Each team member had been a soldier in the Army/Navy Special Forces and was highly trained with multiple specialisations in Mountaineering, Skydiving, Scuba diving, Un-armed combat, Multi-terrain survival tech, Emergency Med Response, etc.
- The initiative was founded by Major Vivek Jacob who was with the Indian Army Special Forces.

Military Exercises

11. Malabar Exercise

- Malabar Exercise started off in 1992 as a bilateral naval exercise between Indian and US navies.
- In 2015, Japan joined the exercise Malabar making it a trilateral naval exercise.
- In 2020, the Australian Navy has joined the Malabar Exercise making it a quadrilateral naval exercise. Earlier, Australia joined the exercise in 2007.
- It is seen as a reflection of the increasing partnership among the Quad countries.

Context:

- India, the U.S., Australia and Japan are scheduled to carry out the Malabar naval exercise off the coast of Guam.

Military Exercises

12. Exercise INDRA-21

- The Indo – Russia joint training Exercise INDRA 2021 commenced at Prudboy Ranges, Volgograd.

Military Exercises

13. Exercise Konkan 2021

- The naval exercise between India and United Kingdom is known as konkan exercise
- The exercise is expected to have consolidate interoperability, and strengthen overall naval ties between India-UK.

Military Exercises

14. India, Saudi Arabia naval exercise

AL-Mohed AL-Hindi:

- AL-Mohed AL-Hindi is the maiden bilateral naval exercise between India and Saudi Arabia.

ENVIRONMENT AND ECOLOGY

Environmental degradation- Global warming and Climate Change

1. Sixth Assessment Report by IPCC

- » Prelims: Paris climate agreement provisions; India's INDC's
- » Mains: Observations and forecasts relevant to India in the recent IPCC report; India's stand on the issue of climate action; Recommendations for way forward

Context:

- "Climate Change 2021: The Physical Science Basis"- Sixth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC).

Details:

- The report notes with concern about earth heading towards a temperature rise of 1.5 degrees Celsius over pre-industrial times by the 2030's itself. The report predicts that based on existing climate action commitments by countries, the world is on track for global temperature warming by at least 2.7°C by 2100.
- * The 2015 Paris Climate agreement had sought to keep global warming below 2 degrees Celsius of pre-industrial levels by the turn of century and endeavouring to limit it to 1.5 degrees Celsius.
- The report unequivocally attributes climate change to unsustainable human activities.
- The report points to the dwindling of Arctic Sea ice, permafrost thaw, shrinking of glaciers as physical evidence of the ongoing global warming.

Concerns:

- At present, the Global surface temperature is higher by 1.07°C since the pre-industrial era.
- No part of the inhabited world is left untouched by the impact of global warming.
- The report warns that this degree of global warming will give rise to some irreversible effects and will only accelerate sea level rise and worsen extremes such as heatwaves, droughts, floods and storms.
- High degree of global warming will accelerate climate change and this would have a severe impact on lives, livelihoods and natural habitats.

Observations and forecasts relevant to India:

Rainfall pattern:

- Global warming is likely to lead to an increase

in annual mean precipitation over India, with more severe rain expected over southern India in the coming decades. Models also indicate a lengthening of the monsoon over India by the end of the 21st century.

- The interannual variability of the summer monsoon is likely to increase. The monsoon extremes are likely to increase over India and South Asia and the frequency of short intense rainy days are expected to rise.
- This increases the threat of flooding in India.

Sea level rise:

- The Indian Ocean is warming at a higher rate than other oceans. The warming of the ocean would lead to a rise in sea levels. Relative sea level around Asia increased faster than global average.
- The sea level rise would give rise to challenges such more frequent and severe coastal flooding in low-level areas, coastal area loss and shoreline retreat.
 - * With a long coastline of about 7,517-km coastline, India would face significant threats from the rising seas. Across the port cities of Chennai, Kochi, Kolkata, Mumbai, Surat and Visakhapatnam, 28.6 million people would be exposed to coastal flooding if sea levels rise by 50 cm.

Impact on Mountainous region:

- The report predicts that the glaciers in the Hindu Kush Himalayan (HKH) region will keep shrinking and the snow cover will retreat to higher altitudes.
 - * Notably, the Karakoram glaciers had either slightly gained mass or were in an approximately balanced state.
- Glacier run-off in the high mountains will increase upto mid 21st century and subsequently run-off may decrease due to the loss of glacier storage.
- Extreme precipitation is projected to increase in major mountainous regions with potential cascading consequences of floods, landslides and glacial lake outbursts.

Heat extremes:

- Heatwaves and humid heat stress will become more intense and frequent during the 21st century.

Cyclones:

- Tropical cyclones will grow stronger and wetter due to global warming.
- This will pose a major challenge to India given

its vulnerability to cyclones along both the Bay of Bengal coastline and the Arabian sea coastline.

India's stand on the issue of climate action:

- India is currently the world's third largest greenhouse gas emitter, but per capita emissions are much lower.
- * India has contributed less than 5% of global cumulative emissions to date, with per capita annual emissions a third of the global average.
- India has been supportive of climate action. India has been taking a lot of measures to reduce GHG emissions.
- * India is also the only nation among the G20 with commitments under the Paris Agreement that are even 2°C warming-compatible.
- * India is on track to achieve its INDCs as per the 2015 Paris agreement.
 - ◊ Reducing the emissions intensity of GDP by 33%–35% by 2030 below 2005 levels
 - ◊ Increasing the share of non-fossil-based energy resources to 40% of installed electric power capacity by 2030. India has committed to installing 450 GW of renewable energy by 2030 of which 100 GW is reportedly installed.
 - ◊ Creation of an additional (cumulative) carbon sink of 2.5–3 GtCO₂e through additional forest and tree cover by 2030
- India has been vocal about climate action based on the principle of common but differentiated responsibility and respective capabilities. India's argument has been that developed countries have used up far more than their fair share of the global carbon budget and hence reaching net zero alone is not enough, as it is the cumulative emissions up to net zero that determine the temperature that is reached. On these lines India has not yet committed to a net zero emission timeline.
- India's nationally determined contribution is to reduce not absolute emissions but the emission intensity of our economy.

Recommendations:

- Every country, government, business and individual must embrace responsibility to keep the goal of 1.5 deg celsius.
- The report recommended deep emission cuts and has asked countries to strive to achieve net zero emissions by 2050.
- However, given the opposition being expressed to the concept of net zero emissions by developing countries like India, the key to achieving Paris Agreement's temperature goals would be in pursuing equitable cumulative emission targets instead of focusing on net zero.

- ◊ Developed countries with legacy emissions need to effect deep emission cuts. Developing nations should also commit themselves to steeper emissions cuts based on the promise of support from developed countries.
- ◊ The developing countries should be supported adequately in their climate action endeavours in the form of easy access to low carbon technologies through technology transfer and adequate funding for mitigation and adaptation.
- The latest scientific assessment must influence discussions at the Conference of Parties (COP26) meeting in Glasgow scheduled later this year and give rise to more climate action from all stakeholders.

Major aspects to be considered at the upcoming COP-26:

Carbon neutrality:

- A major theme building ahead of the climate talks is Carbon Neutrality. The goal of carbon neutrality will be critical to ensuring that the earth does not heat up an additional half a degree by 2100 and will be in line with the temperature targets envisaged under the Paris climate agreement.
- The major aspect of discussion would be on how many nations can commit to a net zero target and by when. As of now a little over 120 countries have committed, with varying degrees of firmness, to reaching carbon neutrality by 2050.
- * India has not committed to a 2050 plan for Carbon Neutrality.

Access to finance and transfer of technology:

- A major aspect of difference between the developed countries and the developing countries when it comes to climate action has been the provision of climate finance to developing countries from developed countries for adaptation and mitigation.
- The promised \$100 billion finance continues to be outstanding.

Environmental degradation- Global warming and Climate Change

2. Permafrost thawing

- » Prelims: Permafrost
- » Mains: Concerns associated with permafrost thawing

Permafrost:

- Areas with ground temperatures that remain below zero degrees Celsius for more than two years are called permafrost. These permanently frozen grounds are most common in regions with

high mountains and in Earth's higher latitudes—near the North and South Poles (Tundra and Taiga regions).

Permafrost thawing:

- Rapid global warming is accelerating permafrost collapse (permafrost thawing) all over the world.
- When thawing, permafrost releases its long-buried elements into the environment—its organic gas is converted into greenhouse gases (carbon dioxide and the extremely potent methane), its mercury can be toxic for humans and animals. It can also lead to the coming back to life of thousand-year-old viruses and lead to outbreak of new diseases.
- Permafrost thaw pose a significant threat to infrastructures in the mountainous regions as well as the arctic. This could lead to loss of life and property.

Environmental degradation- Global warming and Climate Change

3. Rainfall at Greenland ice summit for first time

- » Prelims: Atlantic Meridional Overturning Circulation (AMOC) system.
- » Mains: Impact of global warming and climate change

Context:

- Heavy rainfall has been recorded across Greenland and there has been the first ever recording of rainfall at the highest point on the Greenland ice sheet.
- * Greenland has recorded the largest amount of rainfall since records began in 1950. Rainfall was recorded for several hours at the ice sheet's 3,216-metre summit.

Details:

- The unprecedented rains can be attributed to change in air circulation patterns, indicating the presence of warm and moist air over Greenland.
- Also notably, the temperature at the ice cap which typically remain above freezing temperature have fallen below the freezing temperature thrice in less than a decade
- Experts have warned that the record rains at the summit of Greenland is not an isolated event and is part of a string of warning signs with respect to global warming and climate change. Along with rising floods, fires, and other extremes, the rains in Greenland is one of many “alarm bells” signalling the need to reduce greenhouse gas emissions.

Concerns:

Impact of rainfall on ice sheet melting:

- Rainfall on an ice sheet is not a healthy sign for an ice sheet. Water on ice makes the ice sheet more prone to surface melt as the water is not only warmer than the usual snow but it is also darker – so it absorbs more sunlight.
- The rainfall would only increase the rate of ice sheet melting due to global warming.

Rise in sea levels:

- The melt water from ice sheets stream into the ocean, causing sea levels to rise.
- * Greenland's ice sheet is the world's second-largest icesheet after Antarctica's . The Greenland ice sheet is two miles thick and covers about 650,000 square miles.
- As per available estimates, melting from Greenland's ice sheet has caused around 25% of global sea level rise seen over the last few decades. This share is only expected to grow, as global temperatures increase further.
- * Scientists claim the Arctic is warming faster than any other region on Earth.

Impact of global climate:

- Increased rainfall and melting of the Greenland Ice sheet may be contributing to the observed slowing down of the Gulf Stream Ocean current and its influence on the Atlantic Meridional Overturning Circulation (AMOC) system.

Environmental Impact Assessment

4. Hydropower projects in the Himalayas

- » Prelims: Important upstream tributaries of the Ganga river system
- » Mains: Concerns associated with hydropower projects in Himalayan states like the Uttarakhand; Role of such projects in economic growth of the region and recommendations for way forward.

Context:

- The Environment Ministry, in an affidavit placed in the Supreme Court, has disclosed that it has permitted seven hydroelectric power projects in the state of Uttarakhand to go ahead.

Background:

- In the aftermath of the devastating Kedarnath floods of 2013, the Supreme Court had halted the development of hydroelectric projects in Uttarakhand.
- It had called on the Environment Ministry to review the role played by hydroelectricity

projects in amplifying the natural disasters like cloud bursts and floods.

- Several expert committees were set up to examine the role of 24 such proposed hydroelectric projects in the Alaknanda and Bhagirathi basin of the river Ganga and its tributaries. The first two committees had concluded that the proposed projects could have a significant environmental impact and irreversibly impact the fragile ecology of the region.
- Following this adverse observations by the expert committees, six private project developers impleaded themselves in the case in the SC. They sought their projects to be allowed to be continued given that they were already in various stages of construction following a clearance from the environment ministry.
- A new committee set up in 2015 recommended the projects to be allowed with design modifications to some.

Details:

- The Environment Ministry has given the go ahead to 7 hydropower projects that are reportedly in advanced stages of construction.

Concerns:

Impact on the flow of Ganga river:

- The cleanliness of the Ganga River is premised on minimum levels of water flow in it in all seasons and the proposed hydropower projects in the upstream of the Ganga basin could hinder water flow in the Ganga River.

Environmental impact of hydropower projects:

- The hydro power projects induce severe ecological damage to the region.
 - * The large scale deforestation exercises involved in construction leads to land degradation and desertification in the region.
 - * Large scale projects with large storage basins lead to submergence of large areas of land.
 - * The use of rock blasting and heavy machinery during the construction of power projects has damaged the fragile hills.
 - * The lack of scientific disposal of construction debris is leading to environmental pollution in the river basins.

Exacerbate the vulnerability to natural disasters:

- The fragile ecology of the region is prone to natural disasters like landslides and Glacial Lake Outbursts. The presence of hydropower projects in such vulnerable regions only increase the threat to the life and infrastructure in the region.
 - * The break in the Raunthi glacier had triggered floods in the Rishiganga river in Uttarakhand and washed away at least two hydroelectric power projects- Rishiganga hydroelectric

power project and the Tapovan Vishnugadh project in February, 2021.

- Also the seismically active Himalayan region is prone to earthquakes. A massive earthquake which could damage the dams can lead to flash floods and lead to loss of life and property downstream of the dams.

Threat of climate change:

- Global warming is expected to intensify the Glacier retreat and permafrost thaw. Glacier retreat and permafrost thaw are projected to decrease the stability of mountain slopes and increase the number and area of glacier lakes. Glacier lakes pose the risk of outburst.
 - * Environmental experts have attributed the glacial melt in Raunthi glacier which had triggered floods in the Rishiganga river to global warming.
- Also the recent sixth assessment report of the IPCC has warned of the possibility of increased instances of cloudbursts.
 - * The increased chances of intense spells of rainfall would trigger landslides in the region threatening the hydropower projects. This places the residents of the region at increased risk of loss of lives and livelihood.

Counter-arguments:

- Hydropower is abundantly available in the Himalayan state of Uttarakhand and its usage becomes critical to the development of the state.
- Hydropower constitutes a renewable source of power and will be critical to meet India's obligations under its Nationally Determined Contributions under the Paris Climate Agreement.

Recommendations:

Need for a balance between development and environmentally sustainability:

- While the hydro power projects in the region have brought prosperity, they have also increased the vulnerability of the fragile ecosystem of the region.
- Infrastructural development in the region cannot come at a heavy environmental cost, given that such growth and development will not be sustainable.
- A balance has to be struck between development and environmental sustainability.

Adoption of alternative strategies:

- Small run-off hydro power projects with a small environmental footprint should be promoted in the region.
- Other alternatives like solar power should also be explored.

Review of policy:

- The government must review its policy on hydro power projects.
- The fact that the state of Uttarakhand has its own unique environmental challenges needs to be accounted for adequately in such a policy. The conservation, sustenance of these ecologically fragile regions must be given the highest priority.
- The fact that the government has stated that it is not in favour of greenfield hydropower projects in the region is a welcome move in this regard.

Environmental pollution and conservation efforts

5. Leaded petrol eradicated, says UNEP

- » Prelims: Tetraethyl lead additive-Reasons for its usage and associated concerns; Partnership for Clean Fuels and Vehicles; Sources of lead pollution
- » Mains: The importance of ensuring clean and green mobility

Context:

- The UN Environment Programme (UNEP) has announced the official end of the leaded petrol usage.

Background:

Tetraethyl lead additive:

- Tetraethyl lead (TEL) is an organolead compound with the formula $(CH_3CH_2)_4Pb$.
- TEL was first added to petrol in the early 1920s to improve the performance of car engines.
 - * It helped increase the octane rating of the fuel. This helped increase the antiknock property of the fuel that allowed engine compression to be raised substantially. This in turn caused increased vehicle performance and fuel economy.
 - * The usage of TEL was of particular value in an era of poorly-refined low-octane gasoline.

Harmful effects of usage of TEL:

- Lead is a highly toxic chemical for humans. Leaded petrol has caused more exposure to lead than any other product worldwide, according to the World Health Organization.
- The use of tetraethyl lead as a petrol additive has been a catastrophe for the environment and public health. Experts linked its use in vehicles to premature death, health issues, soil and air pollution.
 - * TEL has contributed to dangerously high levels of lead in human blood.
 - ◇ TEL is absorbed rapidly from the skin as well as the lungs and gastrointestinal tract and

is converted to triethyl lead in the body. This form of lead is responsible for its toxic effects.

- * Leaded petrol causes heart disease, stroke and cancer. It also affects the development of the human brain, especially harming children, with studies suggesting it reduced 5-10 IQ points. Studies have noted that the lead toxicity as being greater in children than in adults.
- * Leaded gasoline contaminates air, dust, soil, drinking water and food crops.

Campaign against leaded petrol:

- The use of TEL continued for decades despite warnings from public health authorities.
- While TEL was banned in the U.S. and many European countries by the end of the 20th century, its usage continued in developing countries. In 2002, almost all low- and middle-income countries, including some Organisation for Economic Co-operation and Development (OECD) members, were still using leaded petrol. Leaded gasoline was used mainly in Africa and in other low-income countries. As of 2002, more than 100 countries were still using leaded petrol.
- The UN Environment Programme (UNEP) began its campaign to eliminate lead in petrol in 2002 via the global Partnership for Clean Fuels and Vehicles (PCFV).
 - * The Partnership for Clean Fuels and Vehicles (PCFV) was set up in 2002 at the World Summit on Sustainable Development with the aim of eliminating leaded petrol globally.
 - * UNEP hosted the Secretariat.
 - * The PCFV worked as a public-private partnership that brought all stakeholders together, providing technical assistance, raising awareness, overcoming local challenges and resistance from local oil dealers and producers of lead, as well as investing in refinery upgrades.

Details:

- The end of leaded petrol follows a 19-year campaign led by the UN Environment Programme (UNEP) led global Partnership for Clean Fuels and Vehicles (PCFV).
- Algeria became the last country to stop selling leaded petrol in July 2021.

Significance:

- The successful eradication of the use of leaded petrol is a huge milestone for global health and environment.
- * The eradication of the usage of leaded petrol will help prevent more than 1.2 million premature deaths annually from heart disease,

strokes and cancer and save world economies over \$2.4 trillion annually

- * It is also a major step forward in greening transport given that it will reduce lead pollution of the environment. It offers an opportunity for restoring ecosystems, especially in urban environments, which have been particularly degraded by this toxic pollutant.
- The end of leaded petrol is expected to support the realization of multiple Sustainable Development Goals, including good health and well-being (SDG3), clean water (SDG6), clean energy (SDG7), sustainable cities (SDG11), climate action (SDG13) and life on land (SDG15).

Way forward:

Tackling other sources of lead pollution:

- While the eradication of TEL will help eliminate the largest source of lead pollution, urgent action is also needed to stop lead pollution from other sources – such as lead in paints, leaded batteries, and lead in household items.

Greening the transport sector:

- The fast-growing global vehicle fleet continues to contribute to air, water and soil pollution, as well as to the global climate crisis.
- * The transport sector is responsible for nearly a quarter of energy-related global greenhouse gas emissions and is set to grow to one third by 2050.
- * Around 1.2 billion new vehicles are expected to hit the streets between 2015 and 2030.
- Attention should be given to change humanity's trajectory for the better through an accelerated transition to clean vehicles and electric mobility.

Environmental pollution and degradation

6. Plastic pollution in Sunderbans

- » Mains: Issue of plastic pollution in the Sunderbans; associated concerns and recommendations

Context:

- Plastic pollution in the Sunderbans.

Background:

- Sunderbans has been battered by many cyclones over the years, with Cyclone Yaas (May 2021) being the latest.
- To support the affected people, packaged relief material has been flowing into the Sunderbans.

Details:

- The unregulated inflow of relief materials has resulted in accumulation of plastic waste in the Sunderbans.

- Large amounts of plastic waste has been observed in the remote areas of the Sunderbans, like Gosaba, Mousuni, Bali, Patharpratima and Kultali.
- Several NGOs, experts, and even officials of the District Police and the Forest Department have pointed out that the plastic accumulating on the isolated islands of the fragile ecosystem are cause for great concern.

Concerns:

- Plastics in the Sunderbans would have both short term as well as long term ecological impact on the Sunderbans ecosystem.
- * The presence of plastic in saline water increases the toxicity of water.
- * It could also contribute to eutrophication of water.
- * The ingestion of plastics by the local fauna will adversely impact their health.
- * The breakdown of plastics in the water will lead to an increase in microplastics, which would subsequently enter the food system.
- * Given that Sunderbans is connected to the sea, the increase of plastic in the region could lead to plastic waste entering the ocean.

Recommendations:

- The local administration along with the support of local NGOs and locals should organise cleanliness drives to remove plastic from the Sunderbans.
- There should be regulation of plastic usage in the region and there should be clearly laid out guidelines to control the flow of plastic into the region. Any such plastic inflow should be properly disposed off with responsibility for the collection and disposal placed on appropriate authorities or the NGOs which are involved in relief material distribution.
- Proper measures need to be taken to reduce single-use plastic usage in the region.
- More eco-friendly alternatives for plastic packaging should be prioritized.

Environmental Conservation efforts

7. Plastic Waste Management Amendment Rules, 2021

- » Prelims: Important provisions in the Plastic Waste Management Amendment Rules, 2021; Extended Producer responsibility
- » Mains: Issue of plastic pollution in India and measures being taken to tackle it

Context:

- Government has notified Plastic Waste Management Amendment Rules, 2021.

Background:

- India has a staggering annual volume of plastic waste.
- It generated about 34 lakh tonnes in 2019-20 alone. Of this, only about 60% is recycled.
- Pollution due to single use plastic items has become an important environmental challenge confronting all countries.

Details:

- The manufacture, import, stocking, distribution, sale and use of the following single-use plastic, including polystyrene and expanded polystyrene, commodities shall be prohibited with effect from 1st July, 2022:
 - * Ear buds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene for decoration;
 - * Plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping or packing films around sweet boxes, invitation cards, and cigarette packets, plastic or PVC banners less than 100 micron, stirrers.
- From 30 September 2021, the thickness of plastic carry bags will be increased from 50 microns to 75 microns and 120 microns, the statement said adding that this will also allow the reuse of plastic carry bags.
- The plastic packaging waste, which is not covered under the phase out of identified single use plastic items, shall be collected and managed in an environmentally sustainable way through the Extended Producer Responsibility (EPR) of the Producer, importer and Brand owner (PIBO), as per Plastic Waste Management Rules, 2016.
- For the effective implementation of the EPR, the guidelines for the same have been given legal force through the amendment Rules.
- The following steps have also been taken to strengthen implementation of Plastic Waste Management Rules, 2016 and also to reduce the use of identified single use plastic items:
 - * States/UTs have been requested to constitute a Special Task Force for the elimination of single use plastics and effective implementation of Plastic Waste Management Rules, 2016.
 - * A National Level Taskforce has also been constituted by the Ministry for taking coordinated efforts to eliminate identified single use plastic items and effective implementation of Plastic Waste Management Rules, 2016.

Challenges in implementation:

- In 2018, India won praise globally for asserting that it would eliminate all single-use plastic by 2022. However, policy coherence to achieve the goal has been lacking.
- The Central Pollution Control Board has reported that while 22 States have announced a ban on single-use plastic, it has had little impact on the crisis of waste choking wetlands and waterways and being transported to the oceans to turn into microplastic.

Initiatives in news

8. A circular economy for plastic

- » Prelims: WWF; Extended Producer responsibility
- » Mains: Issue of plastic pollution and measures being taken to tackle it; The environmental and economic significance of ensuring a circular economy for plastic

Context:

- The proposed India Plastics Pact.

Background:

Plastic pollution:

- Of the many sustainability challenges that impact societies, plastic waste remains one of the most prominent.
 - * As per a 2021 report commissioned by Google- Closing the Plastics Circularity Gap, the world will have to manage more than 7.7 billion metric tonnes of plastic waste over the next 20 years if urgent measures are not taken to address the exponential rise of plastic waste accumulation in the environment.

Details:

- The Plastics Pacts model is active in a number of countries including the U.K., South Africa, and Australia. It is now being brought to India. This will be the first such initiative in Asia. It is being brought to India by The Confederation of Indian Industry (CII) and World Wide Fund (WWF) for Nature-India
- The Plastics Pacts are business-led initiatives and aim to transform the plastics packaging value chain to make them more sustainable.
- The plastics have four main targets
 - * Eliminate unnecessary plastic packaging through redesign and innovation.
 - * Ensure reusability and recyclability of all plastic packaging
 - * Increase the reuse, collection, and recycling of plastic packaging

- * Increase recycled content in plastic packaging
- Targets and annual data reporting will be mandated for the above four targets for the companies which join the Plastics Pact.
- The Pact will develop a road map for guidance, form action groups and initiate innovation projects in the plastic value chain.

Significance:

- The India Plastics Pact will benefit society given the potential impact it can have on the economy and the environment.

Economic aspect:

Impetus to plastic sector:

- The Pact will encourage development and maturing of the entire plastics production and management ecosystem in India.

Boost to investment and jobs:

- The India Plastics Pact will help boost investments in recycling infrastructure and create new recycling capacity. This will create additional jobs in the waste sector, and beyond.

Impetus to the informal sector:

- Integral to the Pact's framework is the involvement of the informal sector in segregation, collection and processing of plastic waste. The plastic recycling sector is a source of livelihood for a large number of people. Post-consumer segregation, collection and disposal of plastics make up about half of the income of 1.5- 4 million waste-pickers in India.

Environmental significance:

Control further plastic pile up:

- The pact will drive circularity of plastics. It will help increase demand for recycled content and reduce the use of virgin plastic. This will help reduce further pile up of plastic waste in the environment.
- This will thus help tackle plastic pollution.

Cut down GHG emissions:

- The increased usage of recycled plastic and reduction of virgin plastic will help cut GHG emissions.
- * As per a 2019 report by the Center for International Environmental Law, by 2050, greenhouse gas emissions from plastic could reach over 56 gigatonnes which would amount to 10-13% of the remaining carbon budget.

In line with EPR provision of plastic waste management rules:

- The India Plastics Pact will support the Extended Producer Responsibility (EPR) framework of the government and improve solid waste

management as envisioned in the Swachh Bharat Abhiyan.

- * The provision 9(2) of the Plastic Waste Management Rules, 2016, states that the primary responsibility for the collection of used multi-layered plastic sachet or pouches or packaging is of producers, importers and brand owners who introduce the products in the market.

Recommendations:

- The solution to plastic waste management must be multi-pronged, systemic, and large scale, to create a substantial impact.
- India Plastics Pact should link globally with other Plastics Pacts. This will ensure access to expertise and knowledge from different Pacts worldwide.

Initiatives in news

9. Delhi's smog tower

- » Prelims: Smog tower
- » Mains: Solutions for tackling air pollution

Context:

- Delhi has inaugurated its first smog tower.

Smog Tower:

- A smog tower is a structure designed to work as a large-scale air purifier, fitted with multiple layers of filters which trap fine dust particles suspended in the air as it passes through them.
- Smog towers have been experimented with in recent years in cities in the Netherlands, China, South Korea and Poland.

Details:

- The smog tower is being built as a pilot study following Supreme Court orders.

Functioning:

- The fans at the bottom of the tower will suck in polluted air from the top and it will pass through 5,000 filters installed at the bottom and finally release purified air near the ground.

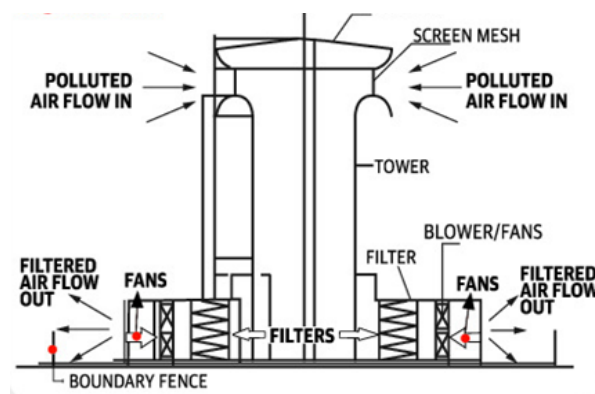


Image Courtesy: The Hindu

- The filters contain electrostatically charged filter media and can capture particles as small as 0.3-10 microns in size..
 - * An electrostatic air filter uses static electricity to give particles a positive charge as they enter the filter. This charge is released as the air continues through subsequent layers of the filter, and results in the particle ultimately getting trapped.
- 1000 cubic metre of air per second could be purified by the tower.
- The smog tower is expected to influence the air quality of more than 1 km in the downwind direction.

Significance:

- The smog tower by helping purify polluted air will help control air pollution in Delhi.
 - * Air pollution in the national capital has been an issue of concern of late. Pollution levels in Delhi increase dramatically during winter posing a serious risk to vulnerable and also healthy populations.
 - * Construction work, industrial and vehicular pollution are the major sources of air pollution. The smoke from stubble-burning in neighbouring states, coupled with unfavourable meteorological conditions, such as calm winds and low temperatures only further aggravate the air pollution in Delhi.

Initiatives in news

10. Punjab govt. to give incentives to industries for using stubble

- » Mains: Reasons for stubble burning and associated concerns; Initiatives for tackling the challenge of stubble burning

Context:

- The state government has come up with a slew of incentives to promote alternate uses of paddy straw.

Background

Stubble burning

- Farmers in the northern states of Punjab and Haryana have been indulging in stubble burning as an agricultural practice over the years. However, its increasing influence in the air pollution observed during the winter months in Northern plains region in general and the National Capital Region of Delhi in particular has resulted in enhanced focus on the practice of stubble burning.
- Stubble burning is mainly observed during the

October to November season.

Reasons for increasing reliance on stubble burning practice:

- Stubble burning has become a quick, cheap and efficient way to prepare soil bed for wheat, the next crop.

Unsuitability as an animal fodder:

- Unlike other crop residues, paddy residue (except for basmati variety) are harder to chew, has low calorific value and high silica content, all of which makes it unsuitable for use as animal fodder.

Short gap between the two crop seasons

- Another major factor is that Punjab and Haryana both enacted laws to protect their rapidly shrinking groundwater level by forcing farmers to delay sowing and transplantation of paddy from May to June. The delayed sowing led to delayed harvesting and left very little time to ready soil bed for sowing wheat, forcing farmers to burn paddy residue in the field as burning offers a cheaper and quicker method to get rid of the residue as compared to the manual clearing of the field.

Mechanized harvesting

- There has been increased cultivation of paddy in the region and mechanised harvesting leaves taller and massive crop residue as against manual harvesting, which cuts crop close to the ground and leaves much less residue.
 - * Paddy is cultivated in 31.49 lakh hectare area (2020) in Punjab, resulting in the generation of about 20 million tons of paddy straw.
- This results in a larger amount of crop residue which would require longer amount of time to decay. The farmers cannot afford to wait for such periods and need to clear the field of the crop residue for the next crop season.

Details:

- In an effort to check stubble burning menace during the paddy season, the Punjab government has come up with a series of incentives for industries.

Fiscal:

- The government would permit certain categories of industries like sugar mills, pulp and paper mills among others to install paddy-straw-fired boilers to claim fiscal incentives. A cumulative amount of ₹25 crore would be provided as fiscal incentives to the first 50 existing industries on 'first come first serve' basis.

Non Fiscal:

- The government would ensure industries availability of 'Panchayat' land for storage of paddy straw with lease agreement upto 33 years.

- Also balers would be made available on priority in areas where paddy straw is used as fuel in boilers.

Significance:

- The new incentives announced by the Punjab state government would help in tackling the challenge of managing crop residue during the harvest season of Kharif crops. This would invariably help control the menace of stubble burning.
- * This would apart from tackling the air pollution problem in and around Delhi and avoid its major health effects will also help in also conserving the fertility of soil and saving the beneficial micro-organisms which would other ways be killed by the fires.

Other recommendations to tackle stubble burning:

- Promotion of short-duration crops, like basmati which have a maturity period of 85-90 days, instead of 110-120 days for non-basmati ones.
- Diversifying cropping pattern to move away from the traditional paddy-wheat combination.
- Composting of stubble. Example: The liquid decomposer solution developed by the Indian Agriculture Research Institute (IARI) at Pusa.
- * The Pusa Decomposer can turn crop residue into manure in 15 to 20 days.
- * These are capsules that consist of a combination of microbes that hastens the process of decomposition of stubble.
 - ◊ The capsule comprises a "microbial consortium" — a combination of different microbes — which has the ability to produce various hydrolytic enzymes, which are responsible for the degradation of the polysaccharide that are present in the cell walls of the plants.
 - ◊ The cell walls of plants are made up of polysaccharide cellulose and breaking it down accelerates the process of degradation.
- * These are also low-cost capsules making it convenient for farmers to use.
- Adoption of various techniques and equipment to avoid stubble burning like direct seeding of wheat without removing paddy stubble by using Happy Seeders and cutting and mixing paddy stubble with soil using Rotavators and Mulchers.
- Encourage alternate use of paddy stubble like its use in making paper and packing materials, generating energy (or using in cement plant) and making composts.

Initiatives in news

11. Turtle Survival Alliance India program

- » Prelims: Turtle species of India
- The TSA India program is managed by Indian biologists who seek local solutions to saving turtles.
- The focal point of this program is the critically endangered Red-crowned Roofed Turtle (Batagurkachuga).
- Multiple initiatives are also underway for the Sundarbans Batagur, Narrow-headed Softshell Turtle, Leith's Softshell Turtle and the Crowned River Turtle.

International agreements in news

12. Kigali Amendment

- » Prelims: Kigali Amendment to Montreal Protocol provisions and India's commitments; Characteristics of Hydrofluorocarbons

Context:

- The Union Cabinet has approved ratification of the Kigali Amendment to the Montreal Protocol.

Details:

- Under the Kigali Amendment, Parties to the Montreal Protocol will phase down the production and consumption of Hydrofluorocarbons (HFCs).
- The Kigali amendment envisages phasing out of Hydro Fluoro Carbons (HFC) by 80-85% of present levels by 2040 in a phased manner.
- India will complete its phase down of HFCs in 4 steps from 2032 onwards with cumulative reduction of 10% in 2032, 20% in 2037, 30% in 2042 and 80% in 2047.

Places in news

13. Degradation of Sambhar Lake ecosystem

- » Prelims: Sambhar Lake
- » Mains: Threats to Sambhar lake ecosystem and associated concerns

Context:

- The study undertaken by the Central University of Rajasthan's School of Earth Sciences on the ecology of the Sambhar lake.

Sambhar Lake:

- The world famous Sambhar Salt Lake is located in the state of Rajasthan about 80 km south-west of Jaipur.
- The Sambhar Lake is the country's largest inland saline water body.

- Sambhar Lake is a wetland of 'international importance' under the Ramsar Convention.
- The lake is known for being a habitat for a large number of migratory species during the winter season. It includes species like the flamingoes, pelicans and the waterfowls among others.

Details:

- The study notes a reduction of wetland area of the lake. The lake has been shrinking with degradation of soil and water quality. This is said to be contributing to a decline in the population of migratory birds to the lake.
- The study notes an increase in settlement, vegetation cover, salt pan encroachments and barren land around the lake.

Threats:

Mining menace:

- Almost 30% of the Sambhar Lake's area has been lost to mining and other activities, including the illegal salt pan encroachments. This has been leading to a shrinking wetland.
- Sambhar is being choked by illegal salt extraction. The proliferating salt pans and illegal borewells have been causing a massive degradation of the lake ecosystem.

Drying up of the seasonal rivers:

- Sambhar Lake is totally dependent on the seasonal rivers that flow into it during the monsoon. But now this water is being sucked away before it reaches the lake, causing it to dry up.
- * The lake receives water from about six rivers, namely Samaod, Khari, Mantha, Khandela, Medtha, and Roopangarh.
- The farmers in the upper catchment area of the lake have built surface embankments across the rivers, obstructing their downstream flow into the lake. They have sunk tubewells along the rivers and laid pipelines to transport water to their fields, choking the rivers and ultimately threatening the wetland ecosystem.

Concerns:

Environmental impact:

- The degradation of the wetland ecosystem will have a marked impact on the migratory birds and biodiversity of the region.
- * In 2019, more than 20,000 migratory birds foraging in the Sambhar marshlands had died due to avian botulism.
- The environmental impact does not augur well for the human settlements in the region in terms of food and water security.

Economic impact:

- The degradation of the ecosystem threatens the livelihoods of local people who have always lived in harmony with the lake and its ecology.
- The salt brine based industry is estimated to be around \$300 million.

Conclusion:

- There is the need for urgent action to restore the lake's ecosystem for protecting the birds and biodiversity as well as the salt production.

Places in news

14. Pobitora Wildlife Sanctuary

- » Prelims: Pobitora Wildlife Sanctuary
- Pobitora Wildlife Sanctuary is located on the southern bank of the Brahmaputra in Morigaon district in Assam, India. It is primarily a grassland and wetland habitat.
- Pobitora is mainly famous for its great Indian One-horned rhinoceros. Pobitora Wildlife Sanctuary holds one of the largest Indian rhinoceros populations in Assam.
- Besides rhinoceros, the other animals are leopard, wild boar, Barking deer, wild buffalo etc. Assam's Pobitora Wildlife Sanctuary is also home to more than 2000 migratory birds and various reptiles. It is also an Important Bird Area.

Places in news

15. Deepor Beel

- » Prelims: Deepor Beel; Eco sensitive zone

Context:

- The Ministry of Environment, Forest and Climate Change has notified the eco-sensitive zone of DeeporBeel Wildlife Sanctuary on the southwestern edge of Guwahati.

Deepor Beel:

- DeeporBeel is one of the largest freshwater lakes in Assam. It is located on the south-western edge of Guwahati, Assam.
- It is a permanent freshwater lake, in a former channel of the Brahmaputra River, to the south of the main river.
- It is a Ramsar Site and an Important Bird Area.
- It sustains a range of aquatic life forms besides 219 species of birds.

Threat to Deepor Beel:

- The beel has shrunk 35% since the 1990s.
- The wetlands have for decades been threatened by a railway track which is set to be doubled and electrified on its southern rim, a garbage dump and encroachment for human habitation and commercial units.

- DeeporBeel has been used as a sponge for Guwahati's sewage via a couple of streams.
- The wetlands have also suffered from seepage of toxins from a garbage dump.

Eco Sensitive Zones:

- Eco Sensitive Zones are fragile areas around protected areas declared by the Ministry of Environment, Forest, and Climate Change (MoEFCC).
- They are areas notified by the MoEFCC around Protected Areas, National Parks and Wildlife Sanctuaries.
- The purpose of declaring ESZs is to create some kind of "shock absorbers" to the protected areas by regulating and managing the activities around such areas.
- Among activities prohibited in the eco-sensitive zone are hydroelectric projects, brick kilns, commercial use of firewood and discharge of untreated effluents in natural water bodies or land areas.
- No new commercial hotels and resorts shall be permitted within 1 km of the boundary of the protected area or up to the extent of the eco-sensitive zone, whichever is nearer, except for small temporary structures for eco-tourism activities.

Species in news-New discoveries

16. Acetabularia jalakanyakae

- » Prelims: Acetabularia jalakanyakae; Significance of its discovery
- » Mains: Significance of algae; Threat to algae

Context:

- A new species of marine green algae has been discovered from Andaman and Nicobar Islands.
- * Algal diversity is one of the highest in the Andaman & Nicobar Islands.
- It has been named Acetabularia jalakanyakae.
- The species is the first of the genus Acetabularia to be discovered in India.
- * What is unique about the species is that the whole plant is made up of just one gigantic cell with only one nucleus.
- * Another feature of Acetabularia is their regenerative potential.

Significance of algae:

- **Oxygen producers:** Marine algae produce almost two-third of oxygen in the air.
- **Food producers:** Single-celled marine species are key to all the life forms on Earth. Algae convert atmospheric carbon dioxide into food

for the marine ecosystem. They are at the base of the food chain. Also, when the algae die, they are consumed by organisms called decomposers (mostly fungi and bacteria).

- **Petroleum fossils:** Algae are also responsible for petroleum. When they die, they sink to the ocean floor. Over the years, this layer turns into what we know as petroleum.
- **Industrial and medical usage:** Marine algae have been used as food and medicine for many centuries. They are not only used as food but also used as extracts in food, dairy, cosmetics, and industrial uses. Algae is used as one of important medical source due to its antioxidant, anticancer, antiviral properties.

Threat to algae:

- Climate change and global warming- Rise in water temperature decreases oxygen levels in the water
- Ocean acidification

Significance of the new discovery:

- Research & studies: The newly discovered species has a giant cell. Having such a giant cell is advantageous for molecular biologists who study cellular processes; as they can see it and manipulate it with the naked eye. For this reason, Acetabularia is considered a model organism.

Species in news-New discoveries

17. New species discovered in India

- » Prelims: Newly discovered species in India
- » Mains: Significance of biological diversity

Context:

- As per a document published recently by the Zoological Survey of India (ZSI), India has added 557 new species to its fauna.

Details:

- The number of faunal species in India has climbed to 1,02,718 species with the discovery of the new species.
- The 557 new species includes 407 new species and 150 new records.
- Among the new species, some interesting species discovered in 2020 are
 - * Trimeresurus salazar, a green pit viper discovered in Arunachal Pradesh;
 - * Lycodon deccanensis, the Deccan wolf snake discovered in Karnataka;
 - * Sphaerothera bengaluru, a burrowing frog named after the city of Bengaluru.
 - * Xyrias anjailai, a deep water species of snake eel from Kerala;

- * Glyptothoraxjudikensis, a species of catfish from Manipur;
- * Clyster galateensis, a species of scarab beetle from the Great Nicobar Biosphere

Species in news-Fauna

18. Conservation of Vultures

- » Prelims: Vulture conservation areas
- » Mains: Significance of vultures; Reasons for decline in their population and initiatives being taken to stabilize their population

Vultures:

- Vultures belong to the Accipitridae family whose members include eagles, hawks and kites.
- They have an average lifespan of 10-30 years in the wild.
- Vultures are slow breeders and so the survival of every individual is very crucial.

Importance of Vultures in an Ecosystem:

- Vultures are very important scavengers in the ecosystem. They feed on decaying flesh of dead animals.
- Very few animals/birds can ingest rotting carcasses. Vultures are such birds.
- * Their powerful bills and long slender necks are designed to help them tear off the meat chunks from inside the carcass.
- * Vultures have a highly acidic stomach that helps them digest rotting carcass and kill disease-causing bacteria.
- In the absence of vultures there could be inefficient clearing of carcasses which could contaminate water systems. If dead animals are left to rot for long durations, it may give rise to disease-causing pathogens. The animals that consume such flesh become further carriers of disease.
- Thus vultures play a crucial role in maintaining the health of the ecosystem.

Concern:

- India has nine species of vultures. Many are critically endangered.
- India lost more than 95% of its vulture population through the 1990s and by the mid-2000s.

Reasons for Decline in Vulture Population:

- The main reason for the decline in the vulture population is the use of the drug, diclofenac. Diclofenac, which relieves cattle of pain, is toxic to vultures even in small doses and causes kidney failure and death.

- Myths about the medicinal healing powers of vultures' body parts has led to the hunting of vultures.
- Quarrying and blasting of stones where vultures nest have also caused their decline.

Steps to increase numbers:

- India banned diclofenac for veterinary use in 2006.
- Five States are to get vulture breeding centres under the Action Plan for Vulture Conservation for 2020-2025, approved in 2020.
- Setting up rescue centres for treating vultures is a part of the Plan.
- Vulture 'restaurants' are also a way of preserving the population.
- * In these 'restaurants', diclofenac-free carcasses of cattle are dumped in designated areas where vultures gather to feed.

Conclusion:

- India requires urgent conservation efforts to save vultures from becoming extinct.
- It is important to spread awareness about the importance of vultures in our ecosystem and take necessary measures to conserve vulture populations.

Miscellaneous

19. Govt. allows GM soy meal import to support poultry industry

- » Prelims: Genetic Engineering Appraisal Committee; Food Safety and Standards Authority of India

Context:

- Union government has allowed the import of crushed genetically modified (GM) soybean.

Details:

- Genetically modified (GM) soybean is a major ingredient of poultry feed.
- With soya prices raising poultry breeders had sought Government approval to import GM soyameal from the US, Brazil and Argentina.
- GM soybean is one of the most widely planted genetically modified plants in the world.
- Also called as the Roundup Ready (RR) soybean, it was developed by the biotech giant Monsanto and made it commercially available to farmers in 1996.

Issue:

- Environmental activists have raised concerns about the permission given for something derived from a genetically modified plant to enter the human food chain.

- India's regulatory system is yet to approve GM foods.

Note:

- In India, the Genetic Engineering Appraisal Committee (GEAC) is the apex body that allows for commercial release of GM crops.
- Use of the unapproved GM variant can attract a jail term of 5 years and fine of Rs. 1 lakh under the Environment Protection Act, 1986.
- Food Safety and Standards Authority of India (FSSAI) is the authorised body to regulate the imported crops in India.

Miscellaneous

20. Milestone in installed renewable energy capacity

- » Prelims: Stats related to renewable energy capacity of India

Context:

- India achieves 100 GW Milestone of Installed Renewable Energy Capacity.

Details:

- The total installed renewable energy capacity in India, excluding large hydro, has crossed the milestone of 100 GW.
- India stands at 4th position in the world in terms of installed RE capacity, 5th in solar and 4th in wind in terms of installed capacity.
- If large hydro is included the installed RE capacity increases to 146 GW.
- The achievement of installed RE capacity of 100 GW is an important milestone in India's journey towards its target of 450 GW by 2030.

HEALTH

Issues relating to health

1. Focusing on diseases sidelined by COVID-19

- » Prelims: NCDs; Global NCD Action Plan
- » Mains: Burden of NCDs in India; Impact of the pandemic on NCDs and recommendations in this direction

Background:

Non-Communicable Diseases:

- Non-communicable diseases (NCDs) are medical conditions or diseases that are not caused by infectious agents. These are chronic diseases of long duration, and generally with slow progression and are the result of a combination of genetic, physiological, environmental and behavioural factors.
- NCDs are the silent killers of our generation.
 - * Nearly 71% of all deaths worldwide occur due to non-communicable diseases (NCDs) such as hypertension, diabetes, cardiovascular diseases, chronic respiratory diseases, and cancer.
 - * One out of every four deaths occurs due to cardiovascular diseases, especially among younger patients. In the Indian subcontinent, there is early onset and rapid progression of such diseases, and a high mortality rate. Those with NCDs find that productive years of life are lost and there is high-out-of-pocket expenditure on treatment.

Non-Communicable Disease Burden in India:

- The burden of NCDs increased across all States from 1990 to 2016.
- According to the "India: Health of the Nation's States report"(2016), 55% of the total disease burden in India was caused by NCDs.

Impact of the COVID-19 pandemic on NCDs:

Increased vulnerability:

- Available evidence points to the increased vulnerability of people with pre-existing NCDs to COVID-19 infection.
- The outcomes in COVID-19 patients with pre-existing cardiovascular disease risk factors or disease and diabetes can be worse than others.

Disruption of NCD services:

- The COVID-19 pandemic has led to the disruption of NCD services.
 - * The staffs working in the area of NCDs have

been reassigned to COVID-19 work. This has led to a lack of staff for NCDs treatment.

- * There is a severe shortage of medicines and diagnostics services availability for NCDs.
- * The decreased availability of public transport has led to cancellations of planned treatments.
- The pandemic has severely disrupted primary healthcare systems which form a critical part of the screening and management of NCDs. As per a World Health Organization (WHO) survey conducted in May 2020 low-income countries were the most affected by this disruption.

Psychological impact:

- Lockdowns and reduced physical interactions led to loneliness, especially in the geriatric population. This resulted in mental health disorders such as anxiety and depression.
- The subsequent increase in consumption of alcohol and tobacco and adoption of an unhealthy diet increases the exposure to NCD risk factors.
 - * Tobacco consumption has been linked to hypertension, cardiovascular diseases and stroke.

Recommendations:

- A paradigm shift is the need of the hour to tackle the silent epidemic transition to NCDs.

Attention to NCDs:

- The national and State health policymakers need to give requisite attention to the NCDs.
- The National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke needs to be expanded and adequately funded.
 - * To address the challenge posed by NCDs, the National Health Mission launched the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke, in 2010, focusing on strengthening infrastructure, promoting good health, human resource development, early diagnosis, management and referral.

Prevention strategy:

- There need to be campaigns for promoting a healthy lifestyle.
- Importance of physical activity and mental health need to be emphasized.

Strengthening primary health care system:

- The primary health system needs to be strengthened to prevent, diagnose and provide care for NCDs.
- * PHC system can tackle up to 80% of health needs and can reduce the need for specialized health care services. Thus strengthening the primary health infrastructure will help lessen the burden on hospitals.
- Primary healthcare systems must be adequately resourced and trained to ensure that persons at risk of NCDs receive appropriate screening, counselling and treatment. The administrations should ensure essential NCD medicines and basic health technologies in all primary healthcare facilities.
- Screening for NCDs at the grassroots level and the delivery of locally relevant and contextual messages for health promotion and prevention of NCDs will be a critical intervention in the fight against the NCDs. The ASHA workers can be appropriately trained and equipped to play this role.
- * As part of Ayushman Bharat, the Government is supporting the States for strengthening Sub Centres and Primary Health Centres as Health and Wellness Centres for the provision of comprehensive primary care that includes preventive and health promotion at the community level with a continuum of care approach.

Use of telemedicine:

- There is the need to ensure that those at the highest risk continue receiving treatment for NCDs in spite of any future lockdowns or travel regulations.
- Telemedicine can help maintain a degree of continuum in healthcare services disrupted by the pandemic. Also additionally it can help reduce travel expenses, thus lowering patients' expenditure burden.

Curtail tobacco and alcohol consumption:

- India's response plan to address the growing burden of NCDs must include tobacco and alcohol cessation activities.

Additional information:

- In 2013, the WHO Global Action Plan for the Prevention and Control of NCDs 2013–2020 (Global NCD Action Plan) was adopted by the World Health Assembly to strengthen global and national responses to prevent and control NCDs.
- The Global NCD Action Plan includes a global monitoring framework and nine voluntary global targets to be attained by 2025.
- The World Health Organization has set a target

of 25% relative reduction in overall mortality from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases by 2025

Miscellaneous

2. BCG vaccine: 100 years and counting

- » Prelims: BCG vaccine; TB disease; India's target for eliminating TB
- » Mains: High TB burden in India-causes and associated concerns; Government initiatives
- BCG (Bacillus Calmette-Guerin) is a vaccine against tuberculosis (TB) in humans.
- * TB continues to be a major public health problem in the world. According to the WHO's Global TB Report, 10 million people developed TB in 2019 with 1.4 million deaths. India accounts for 27% of these cases.
- Currently, BCG is the only licensed vaccine available for the prevention of TB. It is the world's most widely used vaccine with about 120 million doses every year and has an excellent safety record.
- India is committed to eliminate TB as a public health problem by 2025 much ahead of the SDG goal of eliminating TB by 2030.

INDIAN SOCIETY AND SOCIAL ISSUES

Social issues-Related to women and children

1. Challenges faced by females in the digital space

- » Prelims: UNCHR
- » Mains: Online abuse of women- and gendered misinformation- Associated concerns

Online abuse of women:

- To add to the gender disparity in access to internet, women are having to face online abuse.
- Though even men are targeted online, but the attacks faced by both sexes are vastly different. Misinformation/disinformation targets men and women differently. A large number of young women and girls have experienced online abuse and they are more vulnerable to such abuse.

Forms of online abuse:

- According to a recent report of the Special Rapporteur on violence against women for the United Nations Commission on Human Rights, online abuse can involve a variety of activities.
- It can include actions like bullying, trolling, cyber stalking, defamation and hate speech, public shaming, and identity theft and hacking, sexual harassment and threats of sexual violence, or the sharing of intimate images and videos without permission.

Gendered disinformation:

- Women are more prone to gendered disinformation.
- Misinformation and sexism have a symbiotic relationship. Misinformation piggybacks on sexism to discredit vocal women and sexism uses misinformation to reinforce patriarchal norms.

Inter-sectional challenges:

- Misinformation like other forms of abuse and discrimination has inter-sectional challenges.
- Organised disinformation and sexism intersect with Islamophobia, casteism, religious bigotry and other forms of discrimination. This only increases the impact on women from such vulnerable sections.

Vulnerability of women even in high position:

- Even women in high positions are not spared from online abuse.
- * A 2020 report by Amnesty International noted a considerable number of female politicians receiving hateful mentions on Social media platforms like Twitter. A substantial proportion

of them were either sexist or misogynistic.

- * Woman journalists are at a great risk of being under such attacks on their social media platforms. A recent report by UNESCO on online harassment faced by women journalists says that political actors instigate and fuel online violence campaigns against women journalists.

- This is indicative of the extent of online abuse against women and girls and their vulnerability to it.

Concerns:

Impact on the girls and women:

- Online abuse can have a devastating impact on the girl or women who face such abuse.
- It causes tremendous distress. It affects their emotional or physical wellbeing. It results in physical, sexual, psychological or economic harm, and erodes self-esteem among the girls and women who face such abuse.
- It can potentially silence women and force women — including journalists and politicians — out of jobs.

Impact on the society:

- While organised misinformation and trolling affect women on a personal level, it also has a significant impact on society.
- * A healthy democracy is participatory and promotes gender inclusiveness. Sexism and misinformation intimidate women from taking vocal stands and silences them. As a result of this increasingly hostile online environment, many women self-censor or are driven offline entirely, out of fears for their safety. This would deprive the society of any progressive ideas coming from such women. This would be antithetical to a progressive society.
- * With the advent of a virtual society offline violence against women has extended to online, which makes it easier for people to commit violence without consequences. Online abuse is a part of gender-based violence (GBV).
- * The online crisis facing women and girls threatens global progress on gender equality.

Lack of measures to address the challenge:

- Rather than addressing such behaviour, often women are asked to either ignore the abusers or block such handles.

- The author also criticizes the social media platforms of not doing enough to stop such incidents.

Conclusion:

- Online gender-based violence is just as destructive as offline violence.
- Online violence against women and girls should be accorded necessary attention and addressing online abuse should become a part of the feminist discourse.

Government Initiatives

2. Rashtriya Vayoshri Yojana

- » Prelims: Rashtriya Vayoshri Yojana- Provisions

Context:

- A Central Sector Scheme namely 'Rashtriya Vayoshri Yojana' (RVY) is being implemented by the Department of Social Justice and Empowerment with an objective to provide to senior citizens, belonging to the BPL category and suffering from age-related disabilities/infirmities, with such physical aids and assisted living devices which can restore near normalcy in their bodily functions.

About the Rashtriya Vayoshri Yojana:

- It is a scheme for providing physical aids and assisted-living devices for senior citizens belonging to the BPL category.
- Aids such as walking sticks, elbow crutches, walkers, tripods, quadpods, hearing aids, wheelchairs, artificial dentures, spectacles, etc. are provided.
- It is fully funded by the Central Government.
- The scheme is implemented through the Artificial Limbs Manufacturing Corporation (ALIMCO), which is the sole implementing agency.

Government Initiatives

3. Quality of Life for Elderly Index

- » Prelims: Quality of Life for Elderly Index-Parameters
- » Mains: The challenges with an ageing population and measures needed in this direction

Context:

- Quality of Life for Elderly Index released.

Details:

- The Quality of Life for Elderly Index has been created by the Institute for Competitiveness at the request of the Economic Advisory Council to the Prime Minister (EAC-PM).

- The report identifies the regional patterns of ageing across Indian States and assesses the overall ageing situation in India.
- The report presents a deeper insight into how well India is doing to support the well-being of its ageing population.
- The Index framework includes four pillars: Financial Well-being, Social Well-being, Health System and Income Security, and eight sub-pillars: Economic Empowerment, Educational Attainment & Employment, Social Status, Physical Security, Basic Health, Psychological Wellbeing, Social Security and Enabling Environment.
- The index highlights that the best way to improve the lives of the current and future generations of older people is by investing in health, education and employment for young people today.
- It goes far beyond the adequacy of pensions and other forms of income support.

Findings:

- The Health System pillar observes the highest national average, 66.97 at an all-India level, followed by 62.34 in Social Well-being. Financial Well-being observes a score of 44.7.
- States have performed particularly worse in the Income Security pillar because over half of the States have a score below the national average, i.e., 33.03 in Income Security, which is the lowest across all pillars.
- Rajasthan and Himachal Pradesh are top-scoring regions in Aged and Relatively Aged States, respectively.
- Chandigarh and Mizoram are top-scoring regions in Union Territory and North-East States category.
- The Aged States refer to States with an elderly population of more than 5 million, whereas Relatively Aged States refer to States with an Elderly population of less than 5 million.

EDUCATION

Issues relating to Education

1. Why are government schools not the first choice?

- » Mains: Poor state of government schools in India- Factors responsible, consequences and recommendations

Context

- In the light of the Patna High Court asking for data on how many IAS and IPS officers have enrolled their wards in government schools, the article analyzes the state of government schools in India and its impact on education in India.

Background

Government schools in India:

- There are different kinds of government schools in India.
 - * The Kendriya Vidyalayas (KVs), Jawahar Navodaya Vidyalayas and some residential schools run by different State governments are well-resourced, with good infrastructure and good teachers.
 - * However the municipal schools and the government schools run by the different Zilla Panchayats, are not always as well resourced.

Poor state of government schools:

- Apart from the elite government run schools, most government schools in India are mainly characterized by poor infrastructure, lack of well functioning toilets, drinking water and proper compound walls.
- Low Teacher to Pupil Ratio is a big concern in government schools. Almost half the regular teacher vacancies are filled by guest or ad hoc teachers.
- The learning outcomes of children studying in government schools have been generally low.

Contributing factors:

- Low public expenditure in the educational sector.
- Lack of accountability on the part of teachers has been a major impediment to development of government schools in India. Given that there is no pressure from parents on the quality of education in government schools has led to a severe slide in its quality.
- Teachers' professional development is a very weak area in government schools. There is severe lack of investment in terms of resources or in the planning of institutes.

Impact on education:

Impact on the children from poor households:

- The public education system is the primary option for millions of students in India especially for the children coming from poor families.
 - * About 51% students are in government schools and nearly 10% in aided schools.
- Also the government schools have become more important as the pandemic takes a toll on the economy, putting fee-charging schools beyond the reach of many and forcing thousands to move to government schools.
- The poor children who don't have tuition, parents to support them at home, or books are most affected by the poor state of government run schools. This leads to 'learning loss' and poor 'learning outcomes'.

Gender aspect:

- The lack of adequate capacity at the secondary and higher secondary levels in government schools is a major factor for the sharp fall in enrolment beyond the primary level, especially in girls.
- The lack of transportation, location, lack of toilet facilities etc., may be preventing teenagers, especially girls, from accessing secondary education.

Recommendations:

Enhancing public investment in educational sector:

- Government investment in the educational sector needs to be increased.

Decentralized approach:

- Instead of the traditional centralized approach, there should be a micro plan for every school, a larger plan for schools at the district level, and then at the State level. The local bodies should take the lead in this direction.

Ensuring basic facilities:

- Basic facilities like drinking water, toilet facilities and playgrounds need to be ensured.
- Improving the infrastructure of government schools will make them more attractive.

Teacher development:

- There is the need to create better professional networks for teachers, because the best teachers continuously learn from each other. Sufficient attention needs to be given to professional development of teachers as this will be a critical input to improve learning outcome in children.

Issues relating to Education

2. Strengthening foundational education for children

- » Mains: Poor learning outcome in schools; The need to strengthen foundational education and measures to be taken

Issue:

- According to various estimates, the pandemic and lockdowns have led to an alarming drop-out rate from schools, migration of children from private to government schools due to inability to pay fees, increased abuse at home, inadequate nutrition, etc.
- Experts claim that for adults to unlearn and relearn is a very expensive and time-consuming process. Thus, if the foundation of education is weak, any effort at a later stage to strengthen it will only yield sub-optimal results.

What are the major factors that need to be addressed at the foundational level?

- UNICEF has raised the issue of nutrition stating that children, depending on their age group and gender, need to consume 1,000-3,200 calories per day.
 - * Through the mid-day meal scheme, India should try to address the nutritional needs of children.
- Ensuring that the students have acquired foundational skills before being promoted to the next grade is imperative.
 - * The issue with India's National Education Policy (NEP) 2020 is that it proposes pedagogical freedom to the teacher.
 - * The content-heavy curriculum forces instructionist rather than constructivist engagements. As a result, students simply consume what they are taught.
 - * The focus should be on supporting slower foundational development that allows deeper and more meaningful learning.
- There is a need for skilled teachers.
- The status of the teacher reflects the socio-cultural ethos of the society; it is said that no people can rise above the level of its teachers".
 - * NEP 2020 has entrusted the intellectual development of kindergarten children from underprivileged sections to matriculation-pass Anganwadi teachers and helpers.
 - * Anganwadi teachers will not be able to fulfil the task of developing underprivileged kindergarten students into creators simply because they lack the expertise to do so.

- * The proposal to upgrade their skills using online methods is grossly inadequate.
- * More steps are needed to skill the teachers to equip them to encourage and foster critical thinking in students.
- Ensuring the reach of quality education to rural areas.
 - * To fulfil the 2030 Sustainable Development Goal for Education, India needs to undertake efficient interventions and work on a war footing.
 - * It must be acknowledged that EdTech is a resource of the privileged and learning higher-order cognitive skills calls for personal support.
 - * Students in higher education could be mandated to contribute three to six months in government-sponsored programmes by working in the most remote and underdeveloped areas to educate children and teachers.
 - * Private companies could also sponsor mentorship programmes where employees spend about a month on the field.
 - * This will have a transformative effect.
- The ability to successfully achieve Sustainable Development Goal 4 will depend on the priority afforded to school education, primarily by strengthening foundational education.

Initiatives in news

3. Padhna Likhna Abhiyan

- » Prelims: Padhna Likhna Abhiyan- Objectives
- The primary objective of Padhna Likhna Abhiyan is to impart functional literacy to 57 lakh adult illiterates aged 15 and above under a Basic Literacy Programme for a period of one year – 2020 to 2021.
- The aim behind the scheme is to eradicate illiteracy in India.
- This program for adult education is initiated by the Department of School Education & Literacy, Ministry of Education.
- Over the period of time, the focus of the programme shall also be on the basic literacy component, i.e. vocational education (skill development), equivalency, physical and emotional development, practical arts, applied science, or recreation.
- This programme will assertively give an opportunity to those who have either lost the opportunity, or transcended the age of formal education, and now feel a need for learning.
- The Abhiyan will focus on women, Scheduled Castes (SCs), Scheduled Tribes (STs) Minorities,

and other disadvantaged groups. The State/ UT will distribute the allotted target to districts selected by them.

- The scheme shall have a flexible approach and innovative methodologies such as involving school and college students & other volunteers of such Schemes as National Cadet Corps (NCC), National Service Scheme (NSS) and Nehru Yuva Kendra Sangathan (NYKS), for imparting basic literacy.

Initiatives in news

4. Online education to students

- » Prelims: PM eVIDYA, DIKSHA, Swayam Prabha and Shiksha Vani

Context

- Steps taken by the government to provide online education to students – information provided by the Union Minister for Education.

Details

- PM eVIDYA: Facilitating digital/online learning and teaching materials of various types among teachers and students. Know more about PM eVIDYA in the link.
- DIKSHA: Digital infrastructure for providing quality e-content for school education in states/ UTs and QR coded Energized Textbooks for all grades are available on it. Know more about DIKSHA in the link.
- Swayam Prabha: TV channel for classes 1 to 12 (one channel per class).
- Shiksha Vani: Extensive use of Radio, Community radio and CBSE Podcast.
- Special e-content for the visually and hearing impaired developed on Digitally Accessible Information System (DAISY) and in sign language on NIOS website/YouTube.
- All these schemes/programmes are free of cost and available to all the students across the nation.

DISASTER MANAGEMENT

Disaster Management-Landslips

1. Landslips in Himachal Pradesh

- » Prelims: Landslips
- » Mains: Vulnerability of Himalayan states to landslips and role of climate change in further increasing their vulnerability to landslips

Background:

- In the past month, several landslips have been reported across the State of Himachal Pradesh.
- In the latest landslide at least 10 persons were killed after some vehicles were hit by boulders and mud following a major landslide on National Highway 5 in Kinnaur district of Himachal Pradesh.

Vulnerability of Himachal Pradesh:

Seismically active region:

- The Landslide Hazard Zonation Map of India marks over 70% of Himachal Pradesh as 'high risk' and 14% as 'severe' to 'very high risk'. The mountains in the state are young in geological terms and therefore active and hence, the threat of earthquakes remains potent. About 32% of the State is categorised as a high damage risk zone for seismicity.

Mountainous terrain:

- Given the mountainous terrain of Himachal Pradesh, erosion and geological forces make the region prone to natural disasters like landslips, Glacier Lake Outbursts Floods (GLOF) and flooding.
- * As per a report by the Centre for Science and Environment, between July and the first week of August, the State has experienced four major natural disasters leading to loss of life and property.

Anthropogenic factor:

- Deforestation, land degradation and desertification are some of the critical environmental issues in the Himalayan region state of Himachal Pradesh. These issues have been further worsened through man-made interferences like road building and dam building in the region. Construction of roads and buildings, mining and hydropower projects are now increasingly destabilising slopes, making them more susceptible to slippage.

- During the construction of power projects and dams, the use of rock blasting and heavy machinery in construction sites, besides tree felling, have damaged the fragile hills.
- This poses serious questions on the sustainability of this ecologically fragile region.

Role of climate change in increasing the vulnerability of Himachal Pradesh:

- Changing rainfall patterns and rise in extreme weather events like cloudbursts are adding to the risk of landslips.
- The increasing number of landslips and other natural disasters being observed in Himachal Pradesh has raised concerns that they are part of a larger climate shift.
- The recent sixth assessment report by the Intergovernmental Panel on Climate Change (IPCC) warns that a global rise of 1.5 degrees Celsius (from pre-Industrial times) is inevitable in the next two decades. This degree of global warming will lead to increased glacier melt as well as snowlines rising higher and will only increase the frequency as well as intensity of extreme weather events like more intense bouts of droughts as well as short, intense spells of rain.

Climate change manifestation in Himachal Pradesh:

- The temperature in the north-west Himalayan Region has risen by 1.6 degrees Celsius in the last century. The capital city of Shimla is observing increasing temperature and decreasing rainfall and seasonal snowfall.
- The discharge pattern in the major river systems in the state is witnessing changes.
- The quality of apples, a major crop of the region has been affected. Incidence of pest and disease has also increased.

Way Forward:

- The focus must be on early detection and warning systems. Landslide forecasting in the weather bulletins by taking into account antecedent rainfall and local trends like recent developmental activities and previous landslide incidents in the region may prove beneficial in saving lives.
- Much of Himachal Pradesh is in the high-risk zone for landslips. This calls for great caution in pursuing disruptive projects, hydropower projects in particular. In addition, it must be noted that a developmental model that

prioritises heavily engineered structures such as dams and hydropower that involve rock blasting, tree felling and inundating large spaces clearly jeopardises the integrity of mountain slopes. There should be an emphasis on a more sustainable model of growth and development keeping in mind the unique characteristics of the region. Sustainable tourism and farm-based economy should be encouraged

- Though a small Himalayan State, Himachal Pradesh, is playing a very crucial role in sustaining the livelihoods of downstream areas. The conservation, sustenance of these ecologically fragile regions must become a top priority for India.

Disaster Management - Floods

2. Floods in Bihar

- » Mains: Factors contributing to Bihar's vulnerability to floods; Recommendations

Context:

- Floods in Bihar.

Background:

Floods prone Bihar:

- Historically, Bihar has been known to be India's most flood-prone State.
- As per Government of Bihar estimates around 76% of the population in north Bihar faces the recurring threat of flood devastation and about 73.06% of the land area is flood affected.
- Bihar has been experiencing increasing number of floods over the last few years and also the total area affected by floods has also increased during these years.

Factors contributing to Bihar's vulnerability to floods:

Geographical reasons:

- A large part of north Bihar, adjoining Nepal's Tarai region, is drained by a number of rivers that have their catchments in the steep and geologically nascent Himalayas.
 - * About 65% of the catchment area of these rivers falls in Nepal/Tibet and only 35% of the catchment area lies in Bihar.
- These rivers include the Kosi, Gandak, Burhi Gandak, Bagmati, Kamla Balan, Mahananda and Adhwara Group.
- The high discharge and sediment load in these rivers makes them extremely vulnerable to flooding.
- The deposition of stones, sand, silt and sediment has led to river beds rising and changing their course.

Water management errors:

- The infrastructural interventions such as building embankments and re-routing streams have disturbed the conventional pattern of slow water flow. This has led to faster flow of water leading to higher potential for damage from the fast moving water.

Indifferent attitude by Nepal:

- The indifference shown by Nepal on matters of floods and water management in recent years have added to the risks of flooding in North Bihar region.
- The Kosi Treaty of 1954, under which the embankments in Nepal were established and maintained, does not make enough provisions for the maintenance of embankments.
- Also the untimely release of water from Nepal has added to India's vulnerability to flooding.

Concerns:

- The chronic issue of flooding has rendered over five crore people of the north Bihar region in India and Tarai in Nepal vulnerable.
- Despite efforts to mitigate the impact of floods, people continue to suffer with perennial flooding in north Bihar (the Mithilanchal region).
- Despite the significant threat posed by flooding, this does not seem to get the attention it deserves by policymakers.

Recommendations:

- The annual calamity of floods and its devastating effects on lives and livelihoods needs greater attention among the mainstream political and policy establishments.
- Apart from the continued emphasis on infrastructure augmentation in the form of dams and reservoirs, detention basins, embankments and channel improvement, Non-structural measures such as floodplain management, flood forecasting and warning, flood insurance and financial compensation also needs to be taken care of adequately.
- There needs to be greater emphasis on sustainable development.
- India and Nepal will need to establish water cooperation as a common cause. This could take the form of a dedicated intergovernmental panel to study, assess and offer solutions to the flooding issue.

Disaster Management - Urban flooding

3. Urban Flooding

- » Mains: Factors contributing to urban floods and measures needed to be taken to mitigate the

impact; Initiatives taken in this direction.

Context:

- The recent monsoons in Delhi have resulted in water logging in several parts of the city.
- * Despite many measures to address the age-old problem of urban flooding in Delhi, waterlogging during the rainy season continues to torment the city.

Core problems:

Problem with storm water network:

- At the centre of the urban flooding problem is the state of both natural and engineered storm water drains. Storm water drains are supposed to carry the run off rainwater and empty into a waterbody, which in Delhi is river Yamuna.
- * Natural storm water drains are developed over the years as water naturally tries to find a way to flow and it depends on the terrain and slope of the land. The natural storm water drains have been impacted by rapid urbanization in the region. The encroachment on these natural storm water drains is also another major concern.
- * The engineered storm water drains have been developed in silos and the much needed connectivity with larger drains has been missing.
- Apart from the problems with the storm water network leading to urban flooding, faulty sewage systems, rapid urbanisation, and climate change are intensifying Delhi's urban flooding problem.

Faulty sewage systems:

- The lack of a separate sewage network, which is not connected to the storm water drain is a major concern. Sewage flows into the storm water network at many points.
- The waste and sewage reduces the water-carrying capacity of these storm water drains.

Rapid urbanization:

- From being around 60 lakh, the population of the city has increased about four times in a short period of time.
- The unregulated development of the city has altered the natural drainage pattern of the city.

absorption capacity and this adds to the volume and speed of run-off water.

Climate change:

- The rainfall has become erratic. The global warming has resulted in more intense spells of rainfall in a short duration.
- * There have been instances where a month's rainfall has been witnessed in a span of 3-4 hours in a day.

Administrative failure:

- The lack of timely maintenance of drains and sewers has contributed to clogging of storm water drains. The fact that drains in the city are controlled by multiple agencies, makes the task of maintenance of drains and sewers more difficult.
- The Drainage Master Plan, commissioned almost nine years ago and largely seen as a solution, is yet to be implemented due to severe data irregularity.

Disaster Management - Tidal surge

4. Tidal surges

- » Prelims: Tidal surges
- » Mains: Vulnerability of Eastern coastal states to tidal surges; Measures to be taken to mitigate the threat posed by tidal surges

Context:

- The Odisha government has directed engineers of its Water Resources Department to prepare an action plan against storm surges in the coastal areas.
- The State plans to raise saline and flood embankments along the coast to prevent tidal surges from inundating human habitations.

Background:

Vulnerability of Odisha:

- Odisha is the sixth most cyclone prone area of the world. In the last ten years, Odisha has faced seven very severe to extremely severe cyclones.
- With around 480 km of coastline, Odisha remains vulnerable to cyclonic storms along with tidal surges and large-scale saline inundation.

- * The coastal districts of Odisha have witnessed tidal surges of 3.5 metres to 4.5 metres during cyclones.
- A storm surge or tidal surge is a coastal flood phenomenon of rising water commonly associated with low-pressure weather systems, such as cyclones. It is measured as the rise in water level above the normal tidal level, and does not include waves.

Significance:

- Given the trend of increasing frequency and intensity of the cyclones, raising and strengthening of embankments has become a vital and necessary intervention.
- The embankments would save people from tidal surges and inundation in future.

Recommendations:

- While strengthening of flood embankments should be taken up wherever viable, there is also the urgent need to permanently evacuate people from at risk areas.

Disaster Management - Cyclones

5. Cyclones

- » Prelims: Important cyclones which made landfall in India; Cyclone pattern in India.
- » Mains: Vulnerability of India to tropical cyclones; Concerns and recommendations to mitigate the impact of tropical cyclones.

Background:

- Severe cyclones, Tauktae and Yaas made landfalls on India's western coast, Gujarat, and the eastern coast, Odisha, in the month of May 2021, respectively.
- Apart from the loss of lives and the displacement of millions, these cyclones caused massive damage to infrastructure, agricultural sector, and houses. As per the Government of India estimates the economic losses stood at Rs. 320 billion (U.S.\$ 4.3 billion).

Cyclones in India:

- According to India Meteorological Department (IMD), 2013 data, the coastal states of India account for 7% of the global tropical cyclones.
- * The eastern coast has experience more cyclones as compared to the western coast. The state of Odisha has experienced the most number of cyclones.
- Every year, India experiences an average of around five to six tropical cyclones are formed in the Bay of Bengal and the Arabian Sea with

atleast two of these developing into severe cyclonic storms.

- The North Indian Ocean cyclone season occurs between April and November, with peaks in late April to May and October to November.
- Among the natural disasters, cyclones constituted the second most frequent phenomena that occurred in 15% of India's total natural disasters over 1999-2020.

Vulnerability of India to cyclones:

Position of India:

- Given India's location in the North Indian Ocean and it being surrounded by Indian Ocean on two sides, India continues to remain vulnerable to tropical cyclones both on the east and west coast.
- The absence of a large landmass between the Pacific and the Bay allows cyclonic winds to easily move into the Bay of Bengal. Hence low-pressure system originating from the Pacific ocean also travel towards the Indian coastline.

Long coastline:

- The Indian coastline is around 7,500 km and it includes 96 coastal districts.
- Of India's 7500 km coastline, almost 5700 km are highly vulnerable to the impacts of tropical cyclones and related hydro-meteorological hazards and consequently to recurrent loss of life and properties.

Dense population density:

- Around 262 million people live in the 96 coastal districts of India
- The World Bank and the United Nations (2010) estimate that around 200 million city residents would be exposed to storms and earthquakes by 2050 in India.

Impact of climate change:

- Tropical cyclones will grow stronger and wetter due to global warming.
- The increasing sea surface temperatures in the northern Indian Ocean and the changing geo-climatic conditions in India have led to a rise in the frequency and intensity of cyclones in the coastal States.

Concerns:

Fatalities:

- Cyclones have been the third most lethal disaster in India after earthquakes (42%) and floods (33%).
- * There has been an appreciable fall in number of fatalities due to cyclones over the years mainly due to improved early warning systems, cyclone forecasting, and better

disaster management activities such as timely evacuation, rehabilitation and relief distributions.

Economic impact:

- Despite the appreciable fall in number of fatalities due to cyclones over the years, the administration have not been able to minimise economic losses from cyclones.
- * Cyclones have been the second most expensive in terms of the costs incurred in damage in India, accounting for 29% of the total disaster-related damages after floods (62%).
- The absence of long-term mitigation measures has resulted in cyclones inflicting substantial damage to public and private properties.
- Cyclones have also led to an increase in the fiscal burden of governments through increased spending to implement effective cyclone preparation measures.

Recommendations:

Holistic disaster management:

- There should be equal emphasis on all aspects of disaster management.
- * Disaster warning system in the coastal districts should be improved and the disaster preparedness measures should be revamped in line with the needs.
- * Construction of evacuation shelters in cyclone-prone districts should be taken up in a mission mode in the vulnerable areas and regions.
- * Regular meetings for disaster preparedness needs to be conducted to review the capability and lacunae.
- * Specialized disaster action forces needs to be raised.
- * Necessary steps need to be taken to ensure financial protection against calamities through insurance for property and assets.

Adopting of natural solutions:

- Measures should be taken to widen the cover under shelterbelt plantations and help regenerate mangroves in coastal regions to lessen the impact of cyclones.

Long term mitigation measures:

- With a rise in the frequency of cyclones, India needs to look at long-term mitigation measures. A critical long-term mitigation intervention would be to focus on building of cost-effective cyclone-resilient infrastructure such as storm surge-resilient embankments, canals and improving river connectivity to prevent waterlogging in low-lying areas.

- The administration should prioritize installing disaster-resilient power infrastructure in the coastal districts, providing concrete houses to poor and vulnerable households.

Miscellaneous

6. Fatalities due to Hydro meteorological calamities

- » Prelims: Global Climate Risk Index report 2021.
- » Mains: India's vulnerability to extreme weather events.

Context:

- Nearly 6,800 people lost their lives in the country over the past three years due to hydro-meteorological calamities.

Details:

- Hydro meteorological calamities accounted for 14% of the deaths in the country.
- Hydro-meteorological calamities and hazards include flash floods, cloudburst and landslips triggered by extreme rainfall events or cloudbursts.
- West Bengal has recorded the highest deaths due to such calamities among all States, followed by Madhya Pradesh and Kerala.
 - * In West Bengal, for the three consecutive years the deaths due to natural calamities are high. The reason could be the geography of the State where there are both mountains and coastline. The State is susceptible to both landslides, cyclones and floods. Over the past three years, West Bengal had braved four tropical cyclones — Fani (May 2019), Bulbul (November 2019), Amphan (May 2020) and Yaas (May 2021).
 - * In Madhya Pradesh and Kerala, the spike in the casualties has been caused by floods.

Additional information:

- According to the Global Climate Risk Index report 2021, India ranks the seventh worst-hit country globally in 2019 due to the frequent occurrence of extreme weather-related events.
- The Asian Development Bank's report in 2014 estimated that India would suffer a loss of around 1.8% of GDP annually by 2050 from climate-related events.

HISTORY

Medieval Indian History - Important personalities

1. **Dara Shikoh**

- » Prelims: Dara Shikoh's contribution to literature; important literary works
- » Mains: Important personalities in the medieval period who contributed to religious tolerance and harmony

Dara Shikoh:

- Dara Shikoh was the eldest son and heir-apparent of the Mughal emperor Shah Jahan.
- He was killed on the orders of his brother Aurangzeb in 1659 after losing the war of succession.
- Dara Shikoh was known for his tolerance and academic aspects.
 - * He authored the work The Confluence of the Two Seas (Majma-ul-Bahrain), which argues for the harmony of Sufi philosophy in Islam and Vedanta philosophy in Hinduism.
 - * He completed the translation of fifty Upanishads from their original Sanskrit into Persian in 1657 so that they could be studied by Muslim scholars. His translation is often called Sirr-i-Akbar.
 - * He was also a great patron of arts.

Alamgirnama:

- Alamgirnama is the court history of Emperor aurangzeb (1658-1707) written by Mirza Muhammad Qazim.

Medieval Indian History - Important personalities

2. **Abanindranath Tagore**

- » Prelims: Abanindranath Tagore's contribution to literature and art (painting)
- » Mains: The advent of oriental art forms and their contribution to the national movement

Abanindranath Tagore:

- Abanindranath, a nephew of Rabindranath Tagore, is considered the leading light of the Bengal School of Art.
- Abanindranath Tagore was the principal artist and creator of the "Indian Society of Oriental Art". His famous paintings include the iconic 'Bharat Mata' painting.

- Abanindranath Tagore sought to modernise the Mughal and the Rajput styles in order to counter the influence of Western models of art under the colonial regime.
- He was also the first major exponent of Swadeshi values in Indian art. His unique interpretation of swadeshi themes created a new awakening and heralded a revival of Indian art.
- He was also a noted writer, particularly for children. Popularly known as 'Aban Thakur', his books Rajkahini, Buro Angla, Nalak, and Khirer Putul were landmarks in Bengali language children's literature.

Context:

- Year-long celebrations marking 150 years of Abanindranath Tagore.

Medieval Indian History - Significant events

3. **100th Anniversary of Madras Legislative Council**

- » Prelims: Important acts and their provisions during the British rule.

Madras Legislative Council:

- The Madras Legislative Council was inaugurated on January 12, 1921. It was set up under the Government of India Act of 1919.
- Its origins can be traced back to the Indian Councils Act, 1861 when it was set up as an advisory body through which the colonial administration obtained advice and assistance.
- The Indian Councils Act of 1892 expanded the council.
- The Morley-Minto reforms (Indian Councils Act 1909) officially introduced the method of electing members to the Council, though it did not provide for direct elections.
- Based on the recommendations of the Montague-Chelmsford report, the Government of India Act of 1919 was enacted. The Act enlarged the provincial legislative councils and increased the strength of elected members to be greater than that of nominated and official members.
- In April 1921, the Madras Legislative Council adopted legislation to give voting rights to women.
- In 1968, the council's name was changed to Tamil Nadu Legislative Council when the Madras state was renamed Tamil Nadu.

- In 1986, the Legislative Council was abolished and from then on, Tamil Nadu has a unicameral legislature with only a Legislative Assembly.

Context:

- 100th anniversary of the Madras Legislative Council.

GOVERNANCE

Police Reforms

1. Towards a more humane police force

- » Mains: Issue of custodial violence and recommendations to counter it

Context:

- Recently, Chief Justice of India had expressed concern at the degree of human rights violations in police stations in the country despite the existing constitutional guarantees.
- The CJI had noted that the threat to human rights and bodily integrity as being the highest in police stations.
- The CJI noted that the lack of effective legal representation at police stations leads to lack of accountability on the part of the police officers and this becomes a huge detriment to arrested or detained persons.

Background:

Custodial deaths:

- As per National Crime Records Bureau (NCRB) data, though the number of custodial deaths varies year to year, on average of about 100 custodial deaths have taken place every year between 2010 and 2019.
- * Custodial death is the demise of an individual when he is detained or when he is under the custody of the Police Authorities
- Of the 100 average cases, about 3.5 persons allegedly died due to injuries caused by policemen and can be attributed to custodial violence.

Countering custodial violence:

- The article discusses some of the measures that can help in addressing the issue of custodial violence and help improve the human rights protection regime in police stations.

Reducing arrests:

- The most important measure to reduce instances of custodial violence would be to reduce the number of arrests. This would help reduce the chances of violence in custody.
- Despite clearly defined laws and judicial precedents (Arnesh Kumar v. State of Bihar, 2014) which mandate arrest only in certain circumstances, the police have resorted to unnecessary arrests at times.
- The Supreme Court in a recent judgment held that each arrest must be necessary and justified and that having the authority to arrest is alone not sufficient.

Separating investigative and law and order wings:

- The investigative functions and the maintenance of law and order functions of the police should be clearly demarcated and preferably separate forces should be allocated. The separate investigative wing will do more professional investigation and will not use unwarranted methods like torture to extract confession from the accused.
- * This has been recommended by various commission and committees as well like the National Police Commission (1977-81), the Law Commission in its 154th report (1996) and the Malimath Committee Report (2003) and even the Supreme Court in Prakash Singh v. Union of India (2006).
- Adequately resourced investigative wing in terms of human resources, funding and infrastructure can help bridge the large gap in demand and availability of investigative officers.

Implementation of guidelines issued in D.K. Basu v. State of West Bengal (1996) case:

- The judgment in the D.K. Basu v. State of West Bengal (1996) marks a landmark in the fight against custodial violence.
- The Supreme Court had laid down guidelines to check custodial torture and increase transparency and responsibility of the police officer effecting arrest.
- * Mandatory providing of information to a friend or relative about the arrest
- * Compulsory medical examination
- * Permission to meet a lawyer
- The right implementation of these guidelines will go a long way in addressing the issue of custodial violence.

Installation of CCTV cameras:

- The lack of effective legal representation at police stations leads to a lack of accountability on the part of the police officers and this becomes a huge detriment to arrested or detained persons.
- Installation of CCTV cameras in police stations will help in checking the violation of human rights in police stations. Mandatory storage facility of audio-video recording for 18 months must be ensured.
- An independent committee could study the footage and periodically publish reports of its observations.

Punishment to the guilty:

- The police officers guilty of custodial violence must be punished severely after a thorough and time bound judicial inquiry. A swift and severe punishment will act as a deterrent to police officers.

Educating the police force:

- The police officers must be sensitised regularly on the issue of custodial violence and be encouraged to employ scientific tools of interrogation like the lie detection test, narco test and brain fingerprinting test.
 - * Brain fingerprinting is a lie detection technique which uses electroencephalography (EEG) to determine whether specific information is stored in a subject's brain.
- The installation of display boards on human rights to disseminate information about the constitutional right to legal aid and availability of free legal aid services may deter police excesses.

Government Policies and Interventions

2. Providing horizontal quota: the Bihar way

- » Prelims: Difference between vertical and horizontal reservation; relevant constitutional articles
- » Mains: Significance of the horizontal quota for women

Context:

- The Bihar government has announced 33% horizontal reservation for women in State engineering and medical colleges.

Background:

Vertical Reservation:

- Reservation for Scheduled Castes, Scheduled Tribes, and Other Backward Classes is referred to as vertical reservation. It applies separately for each of the groups specified under the law.

Horizontal Reservation:

- It refers to the reservation provided to other categories of beneficiaries such as women, veterans, the transgender community, and individuals with disabilities, cutting through the vertical categories.
- The horizontal quota is applied separately to each vertical category, and not across the board.

Constitutional provisions related to reservation for women:

- While Article 15 of the Indian Constitution bars discrimination on the basis of sex, clause (3) of Article 15 specifically provides that nothing in the Article 15 shall prevent the State from making any special provision for women and children.

Details:

- Bihar currently has 60% reservation in the State higher educational institutions.
- The newly announced reservation for women in engineering and medical seats will be distributed across the existing vertical categories, including the non-reserved 40% seats open to all.

Significance:

Improve the FLFP:

- Initiatives like reservation of seats for women could become an important driver for improving the rather low female labour force participation (FLFP) rate.
 - * India's female labour force participation (FLFP) rate is low and has been declining consistently. As per the World Bank data FLFP has come down to 21% in 2019 from 31.79% in 2005.
 - * Bihar in particular has a very poor FLFP rate compared to the all-India average. Only 6.4% and 3.9% women in Bihar were employed in the urban and rural areas compared to the all-India figures of 20.4% and 24.6% respectively.

Boost to the economy:

- Economic experts have pointed out the increasing women's participation in the workforce to the level of men boosts the economy.
 - * As per the joint paper prepared by IMF Chief Christine Lagarde, raising women's participation in the labour force to the same level as men can boost India's GDP by 27 per cent.

Aid women in overcoming social barriers:

- Welfare initiatives like this can go a long way in challenging the patriarchal mindset and systemic gender discrimination prevalent in the society.
- This will provide an impetus to the women to overcome the social barriers to their entering the mainstream society and go a long way in reducing gender disparity in the country.

Recommendations:

Extending the model:

- This initiative should be adopted across sectors, departments and States.
 - * The reservation for women should be extended to all institutions of higher education, including private colleges and universities. Also the quota should be gradually increased to 50%.
 - * Other State governments and the Union government should follow the Bihar government's lead and introduce horizontal quota for women.

Addressing related aspects:

- While the initiative is no doubt a step in the right direction, issues such as the low female literacy rate and FLFP rate could render the current initiative ineffective in truly empowering the women. Hence the related aspects will need to be addressed.
- * The administration should work towards reducing the female dropout rate and ensure quality education at the primary and secondary level.
- * One of the important factors for the low FLFP rate is the lack of employment opportunities for women even after matriculation and graduation. The administration needs to ensure adequate job opportunities for women in the government sector, by filling up pending vacancies in the health sector, police force, teaching and other government departments.

Other women oriented initiatives taken in Bihar:

- Various initiatives to empower women and improve their representation in various fields have been taken in Bihar.
- * In 2006 Bihar became the first State to reserve 50% seats for women in Panchayati Raj institutions.
- * In 2013, Bihar made a provision for 50% reservation for women in cooperative societies and reserved 35% seats for them in police recruitment. In 2016, the government extended the 35% reservation for women to all government jobs in Bihar for which direct recruitment is made.

Government schemes

3. Evaluation of the Ujjwala Yojana

- » Prelims: Ujjwala Yojana- Provisions
- » Mains: Concerns associated with the functioning of the scheme and recommendations

Context:

- Recently, the Prime Minister introduced Ujjwala 2.0 under which one crore additional Pradhan Mantri Ujjwala Yojana connections are to be provided to low-income families who could not be covered under the earlier phase of PMUY.

Background:

Pradhan Mantri Ujjwala Yojana:

- The Indian government introduced the Pradhan Mantri Ujjwala Yojana in 2016.
- Under this scheme, 5 Cr LPG connections were to be provided to Below Poverty Line families with a support of Rs.1600 per connection.

- Access to this clean energy was expected to alleviate the public health burden posed by household air pollution on women. Also the scheme would improve women's access to education, leisure, and the labour market, and also improve the environment and climate.
- * The use of firewood or dung cakes for cooking was associated with following concerns.
 - ◊ The collection of firewood or making dung cakes involved lot of time and efforts. This limited the women's avenue for participation in other economic activities.
 - ◊ Use of firewood and dung cakes leads to indoor pollution and affects health
 - ◊ The use of firewood has an adverse impact on the environment as well in the form of deforestation and release of GHGs.
- NITI Aayog has laid out a road map for universal access to LPG by 2025.

Concerns with implementation of PMUY:

Low usage:

- Evaluation studies have pointed out to the fact that many LPG connection holders are still using other fuels like firewood and dung cakes. Firewood or cow dung continues to be the main cooking fuel for most of such people, as these sources of fuel are free of cost and easily available.
- * Official data show that 48% rural households used LPG (2018) but only partially.

Possible factors:

- Expensive refills.
- Low value attached to opportunity cost of women's labour
- The other problems in accessing LPG are administrative and include the distance to LPG distribution centres and long waiting time.

Recommendations:

- As questions arise over the Ujjwala scheme's success, it would be prudent to introduce alternative clean, easily accessible and affordable sources of energy
- * Alternatives like solar energy and solar cookers, smokeless chulhas, biogas plants and electric cookers needs to be also promoted. Research and development efforts need to be made in the public and private sectors to explore these alternatives.
- Women in India can achieve energy security for cooking only through cheaper and efficient alternatives.

Government schemes

4. Pradhan Mantri Jan Vikas Karyakaram (PMJVK)

- » Prelims: PMJVK
- The PMJVK seeks to provide better socio-economic infrastructure facilities to the minority communities particularly in the field of education, health & skill development which would further lead to lessening of the gap between the national average and the minority communities with regard to backwardness parameters.
- The scheme addresses the development deficits of the identified Minority Concentration Areas (MCAs).
- The erstwhile Multi-sectoral Development Programme (MsDP) has been restructured and renamed as Pradhan Mantri Jan Vikas Karyakram for effective implementation since 2018.
- It is a centrally sponsored scheme.
- The PMJVK aims at improving socio-economic conditions of the minorities and providing basic amenities to them for improving quality of life of the people and reducing imbalances in the identified minority concentration areas.
- The projects to be taken up under PMJVK would be related to the creation of infrastructure mainly in the sectors of education, health and skill development, besides innovative schemes for improving the socio-economic and living conditions of minority communities and other communities living in the catchment area.

Government schemes

5. PM-DAKSH Yojana

- » Prelims: PM-DAKSH Yojana

Context:

- PM-DAKSH portal and mobile app launched.

About PM-DAKSH Yojana:

- The Pradhan Mantri Dakshta Aur Kushalta Sampann Hitgrahi (PM-DAKSH) Yojana is being implemented by the Ministry of Social Justice and Empowerment from the year 2020-21.
- Under this Yojana, eligible target groups are being provided skill development training programmes on (i) Up-skilling/Re-skilling (ii) Short Term Training Programme (iii) Long Term Training Programme and (iv) Entrepreneurship Development Program (EDP).
- The target groups include marginalized persons of SC, OBC, Economically Backward Classes, Denotified Tribes, Sanitation workers including waste pickers, manual scavengers, transgenders and other similar categories.

Government schemes

6. 'Seekho Aur Kamao' Scheme

- » Prelims: Provisions of the scheme
- Seekho Aur Kamao Scheme has been implemented since 2013-14 for the skill development of minorities. It is under the Ministry of Minority Affairs.
- Seekho Aur Kamao is a skill development scheme for people of the 14 – 35 years age group and aiming at providing employment and employment opportunities, improving the employability of existing workers, school dropouts, etc.
- The scheme ensures 75% placement, out of which 50% should be in the organized sector.
- As per scheme guidelines, the implementing organizations will be required to establish linkages with placement services, and for the candidates interested in self-employment after availing the training, the organization shall arrange easy micro finance/loans for them through financial institutions, National Minority Development Finance Corporation (NMDFC), banks, etc.
- Post placement support of Rs. 2000/- per month is provided to placed trainees for two months as placement assistance.

Government schemes

7. Har Ghar Nal Se Jal

- » Prelims: Provisions/ targets of the programme
- 'Har Ghar Nal Se Jal' is a key focus of the Jal Jeevan Mission.
- The 'Har Ghar Nal Se Jal' programme envisions taking piped water supply to 18 lakh rural households.
- It is an upgraded version of the National Rural Drinking Water Programme (NRDWP), which was launched in 2009.
- The NRDWP aimed at providing drinking water supply in rural areas by 2030 at an estimated cost of Rs 6 lakh crore.
- The basic objective of the program is to provide running tap water to every household.
- There will be some mandatory components of the scheme that states will have to implement, including setting up bore-wells and tube-wells in areas where there is no infrastructure to supply water, in addition to pumps with dry sensors and recharge structures, among other things.

Government schemes

8. SUJALAM

- » Prelims: SUJALAM campaign
 - Ministry of Jal Shakti has launched a '100 days campaign' named SUJALAM to create more and more Open Defecation Free (ODF) Plus villages by undertaking wastewater management at the village level.
 - * The Swachh Bharat Mission's first phase was to achieve open defecation free (ODF) status by constructing a toilet in every rural household and persuading all villagers to use it.
 - * The second phase, termed ODF+, aims to sustain and extend these sanitation gains by focusing on solid and liquid waste management.
- Under the SUJALAM campaign the Jal Shakti Ministry plans to create a million soak pits in villages across the country over the next 100 days, to help manage grey water.
 - * The household or community soak pit offers a simpler solution for grey water management as opposed to having waste water drains and common village ponds. It offers a safe as well as inexpensive method and also helps avoid the problem of drainage blockage and the need for periodic maintenance.

GEOGRAPHY

Geography - Oceanography

1. Atlantic Meridional Overturning Circulation

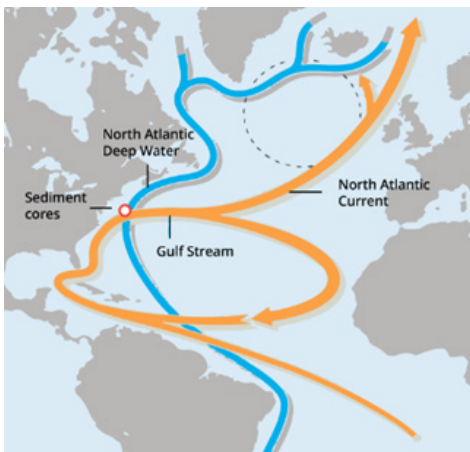
- » Prelims: Atlantic Meridional Overturning Circulation (AMOC); Other thermohaline circulation systems and their significance
- » Mains: Causes and impact of the destabilization of AMOC

Context:

- A new study published in Nature Climate Change shows that the Atlantic Meridional Overturning Circulation (AMOC) may have become unstable over the last century and reached a tipping point.

Atlantic Meridional Overturning Circulation (AMOC):

- The Atlantic Meridional Overturning Circulation (AMOC) is a major current in the Atlantic Ocean and can be considered as a large system of ocean currents.
- AMOC is characterized by a northward flow of warm, salty water in the upper layers of the Atlantic, and a southward flow of colder, deep waters that are part of the thermohaline circulation.



- Since it aids in distributing heat and energy, AMOC maintains temperature equilibrium of Europe and influences world weather.

Causes of the destabilization of AMOC:

- Global warming caused by Greenhouse gases is one of the major reasons for the slowing down of Atlantic Meridional Overturning Circulation
- The Atlantic overturning is driven by what the scientists call deep convection, triggered by the differences in the density of the ocean water

- * Warm and salty water moves from the south to the north where it cools down and thus gets denser. When it is heavy enough the water sinks to deeper ocean layers and flows back to the south. It carries heat equivalent to a million nuclear power plants.

- Global warming has caused the Arctic to warm, Greenland to melt, rainfall to increase, and the flow of freshwater into the northern seas to intensify

Impact of the destabilization of AMOC

- The destabilization of AMOC could have drastic consequences on the global climate.
- * It could imply more extreme weather events like a change of the winter storm track coming off the Atlantic, possibly intensifying them.
- * Its slowdown is also associated with an observed 'cold blob' in the northern Atlantic
- * The Sahara region will become more drought prone.
- The Intergovernmental Panel on Climate Change (IPCC) Report suggests that any substantial weakening of the AMOC would cause a decrease in marine productivity in the North Atlantic

Geography - Climatology

2. Break in Monsoons

- » Prelims: Break in Monsoons: Features and causative factors.
- During July and August, there are certain periods when the monsoons become weak. Rainfall practically ceases over the country outside the Himalayan belt and southeast peninsula. This is known as break in the monsoon.
- * Rainfall increase along the foothills of Himalayas, Northeast India and parts of the Southern Peninsula (Rayalseema and Tamil Nadu).
- Middle of August is most prone to 'breaks' and that too longer breaks.
- The breaks are believed to be brought about by the northward shifting of the monsoon trough (minimum low pressure cell in ITCZ). The axis of the trough lies at the foothills of the Himalayas during the break period.

Context

- The India Meteorological Department has said that atmospheric conditions are favourable for the revival of monsoon in northwest India.

Changes in critical geographical features

3. Ladakh glacier retreat

- » Prelims: Pensilungpa glacier; Other important glaciers and associated rivers in India
- » Mains: Retreat of Ladakh glaciers: Causative factors and associated concerns

Context:

- A recent study has indicated that the Pensilungpa Glacier located in Ladakh's Zaskar Valley is retreating.

Details:

- The study conducted by scientists from the Wadia Institute of Himalayan Geology (WIHG), Dehradun, showed that the glacier is now retreating at an average rate of 6.7 metres per annum.
- The study has attributed this to an increase in the temperature and decrease in precipitation during winter.
 - * Climate change is causing variations in both temperature and snowfall.
- The study suggests that due to continuous rise in the air temperature in line with the global trend, the melting would increase, and it is possible that the precipitation of summer periods at higher altitudes will change from snow to rain, and that may influence the summer and winter patterns.
- The study also points at the significant influence of debris cover on the mass balance and retreat of the glacier's endpoint, especially in summer.
 - * Mass balance defined as the difference between accumulation and ablation is crucial to the survival of a glacier.
 - * Debris-covered glaciers are valley glaciers that have a layer of rocks and sediment on top of the ice surface. Many of the world's alpine glaciers are covered by debris to some extent, and this debris affects the rate of ice melting. This, in turn, impacts the overall mass balance of glaciers.

Places in news

4. Agalega island

- » Prelims: Agalega island; Chagos island

Agalega island:

- It is a remote Mauritian island in the south-western Indian Ocean.
- Agalega, some 12 kilometres long and 1.5 kilometres wide island, is located about 1,100-km from Mauritius' main island.

Chagos island:

- The Chagos Archipelago or Chagos Islands is a group of seven atolls comprising more than 60 islands in the Indian Ocean.
- The UK had purchased the Chagos Islands from Mauritius. In 1965 however U.K. separated the Chagos Islands from Mauritius and set up a joint military base with the United States on Diego Garcia, the largest of the isles.

Context:

- Amid reports of an upcoming Indian military base on Agalega, Mauritius has denied any such agreement between India and Mauritius for a military base..

Places in news

5. Oodaaq

- » Prelims: oodaaq
- Oodaaq or Oodap Qeqertaa is a bank of gravel and silt northeast of Greenland that has been considered by some to be the most northerly point of land on Earth, though a number of other places have also been given that title since its discovery.
- Scientists have recently discovered what is believed to be the world's northernmost landmass — a yet-to-be-named island north of Greenland that could soon be swallowed up by seawaters. The new island is 780 m north of Oodaaq.

MISCELLANEOUS

1. UN warns hunger is expected to rise in 23 global hotspots

- The Food and Agriculture Organization and World Food Program in their latest report have warned of a rise in global hunger hotspot in the next three months.
- It has warned of catastrophic situations in Ethiopia's embattled Tigray region, Drought hit southern Madagascar, Yemen, South Sudan and northern Nigeria.
- The report notes acute hunger not only increasing in scale but also severity.
- Overall, over 41 million people worldwide are at risk of famine, food insecurity and death.

2. Largest Floating Solar PV Project

Context

- The National Thermal Power Corporation (NTPC) Ltd., has commissioned the largest Floating Solar PV Project (25MW) on the reservoir of its Simhadri thermal station in Visakhapatnam, Andhra Pradesh.

Details

- It has been functionalized as part of the Flexibilization Scheme, launched by the Government in 2018.
- The total floating installation is spread over 75 acres in area with energy from one lakh solar PV module.
- Once operational it is expected to minimize 46,000 tons of CO2 annually. It is also believed to conserve 1,364 million liters of water per annum.
- Along with the solar PV model, NTPC is also planning on setting up a hydrogen-based micro-grid system on a pilot basis, at Simhadri.
- As part of NTPC's target to install 60 gigawatts of renewable energy capacity by 2032; NTPC has powered a total of 71 Power Stations including 29 Renewable energy projects.
- NTPC is India's first energy company to declare its energy compact goals as part of the UN High-Level Dialogue on Energy (HLDE).
- The intent of NTPC is to provide affordable, uninterrupted clean energy from its Power stations.

PRACTICE QUESTIONS

1. Arrange the following in the correct Chronological order of their arrival in India:

1. Danes
2. Portuguese
3. English
4. French

Options:

- A. 1-2-3-4
- B. 2-3-1-4
- C. 2-1-3-4
- D. 1-2-4-3

2. Consider the following statements:

1. Out of all the European colonial powers that came to India, it was the Dutch who had the shortest presence in comparison to the Portuguese and the English.
2. The first factory founded by the Dutch in India was at Masulipatnam.
3. The Battle of Colachel permanently ended Dutch presence in South India when the Travancore army defeated an army of the Dutch East India company.

Which of the above statements is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 3 only
- D. 1, 2 and 3

3. Which of the following statements is/are correct?

1. The Sun is the largest object in our solar system, comprising 99.8% of the system's mass.
2. The diameter of the Sun is 190 times that of the Earth.

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

4. With reference to the InSight mission, which of the following statements is/are incorrect?

1. It is part of NASA's Discovery Program.
2. InSight is the first mission dedicated to looking deep beneath the Martian surface.

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

5. Consider the following statements:

1. The Rajya Sabha has no power either to reject or to amend a Money Bill.
2. The Rajya Sabha cannot vote on the Demands for Grants.
3. The Rajya Sabha cannot discuss the Annual Financial Statement.

Which of the statements given above is/are correct?

- A. 1 only
- B. 1 and 2 only
- C. 2 and 3 only
- D. 1, 2 and 3

6. Who among the following are entitled to Free Legal Services?

1. BPL cardholders
2. A woman is entitled to free legal aid irrespective of her income or financial status
3. An industrial workman
4. A member of a Scheduled Caste or Scheduled Tribe

Options:

- A. 1 only
- B. 1 and 4 only
- C. 2, 3 and 4 only
- D. 1, 2, 3 and 4

7. Which of the following are the advantages of Direct Seeding of Rice (DSR)?

1. It helps in saving irrigation water
2. Less labour required
3. Planting cost is saved
4. It will save energy

Options:

- A. 1, 2 and 3 only
- B. 2, 3 and 4 only
- C. 1, 3 and 4 only
- D. 1, 2, 3 and 4

8. Consider the following statements:

1. Under the Rights of Persons with Disabilities Act, 2016, disabilities have been increased from 7 to 21 and the State Governments will have the power to add more types of disabilities.
2. Every child with benchmark disability between the age group of 6 and 18 years shall have the right to free education.

Which of the above statements is/are incorrect?

- A. 1 only
- B. 2 only
- C. Both
- D. None

9. Which of the following statements is/are correct?

1. Halam Tribes are native to the state of Tripura, Assam and Sikkim.
2. Longai River is a trans-boundary river in India and Myanmar.

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

10. Which of the following parties were established by Dr. B. R. Ambedkar? (UPSC 2012)

1. The Peasants and Workers Party of India
2. All India Scheduled Castes Federation
3. The Independent Labour Party

Select the correct answer using the codes given below:

- A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

11. Consider the following statements:

1. Under the preventive detention as enshrined under Article 22, a person cannot be detained for more than three months.
2. The grounds of detention should be communicated to the detenu.
3. Both the Parliament and the State Legislature can make a law of preventive detention for reasons connected with the security of a state, defence, maintenance of Public order.

Which of the above statements is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

12. With reference to Zika virus disease, which of the following statements is/are correct?

1. It is caused by a virus transmitted primarily by Aedes mosquitoes.
2. Zika virus infection during pregnancy can cause infants to be born with microcephaly.

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

13. Which one among the following statements best describes the Copenhagen Consensus?

- A. It is a project that seeks to establish priorities for advancing global welfare using methodologies based on the theory of welfare economics
- B. It aims to catalyse rapid reductions in short-lived climate pollutants to protect human health, agriculture and the environment
- C. It refers to a set of free-market economic ideas
- D. It is an intergovernmental treaty concerned with the conservation of wildlife and habitats

14. Which of the following are the initiatives undertaken by the Government for the welfare and upliftment of the minority communities?

1. USTTAD
2. Hamari Darohar
3. Nai Manzil
4. Sakhi Scheme
5. Sanskritik Sadbhav Mandap

Options:

- A. 1, 2 and 4 only
- B. 2, 3, 4 and 5 only
- C. 1, 2, 3 and 5 only
- D. 1, 2, 3 and 4 only

15. Consider the following pairs:

1. Radhakanta Deb — First President of the British Indian Association
2. Gazulu Lakshminarasu Chetty — Founder of the Madras Mahajana Sabha
3. Surendranath Banerjee — Founder of the Indian Association

Which of the above pairs is/are correctly matched?
[UPSC 2017]

- A. 1 only
- B. 1 and 3 only
- C. 2 and 3 only
- D. 1, 2 and 3

16. Which of the given statements with respect to project CHAMAN is/are correct?

1. It is a pioneer project to provide strategic development to the horticulture sector in order to increase farmer's income.
2. Crops such as Rice, Wheat, Mustard and Jute are assessed under CHAMAN project using remote sensing technology and satellites.

Options

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

17. Which of the given statements is/are INCORRECT?

1. The Battle of Pollilur and the Battle of Porto Novo were fought as a part of the Third Anglo-Mysore war.
2. As per the Treaty of Mangalore signed after the Third Anglo-Mysore War, Tipu Sultan had to

surrender two of his sons as surety to the British till he paid his due.

3. Mysore entered into a Subsidiary Alliance with the British after the Third Anglo-Mysore War.

Options:

- A. 1 only
- B. 2 only
- C. 1, 2 and 3
- D. None of the above

18. Consider the following statements with respect to Saubhagya Scheme:

1. The scheme was launched to provide free electricity to all households (both APL and poor families) in rural areas and poor families in urban areas.

2. Rural Electrification Corporation (REC) is the nodal agency for the scheme.

3. Beneficiary households for free electricity connections under the scheme are identified using SECC 2011 data.

Which of the given statements is/are INCORRECT?

- A. 1 only
- B. 2 and 3 only
- C. 3 only
- D. 1 and 3 only

19. Which among the following are applications of Coir geo-textiles?

1. Rainwater Harvesting
2. Promoting quick vegetation
3. Improvement of sub-grade soil strength in road pavements
4. Stabilization of side slopes to check soil erosion
5. Construction of roads

Options:

- A. 1, 2, 3 and 4 only
- B. 2 only
- C. 2, 4 and 5 only
- D. 1, 2, 3, 4 and 5

20. Consider the following pairs:

Community sometimes mentioned in the news: In the affairs of

1. Kurd: Bangladesh
2. Madhesi: Nepal
3. Rohingya: Myanmar

Which of the pairs given above is/are correctly matched? [UPSC 2016]

- A. 1 and 2
- B. 2 only
- C. 2 and 3
- D. 3 only

21. What is 'Project Himank'?

- A. It is a high-altitude research station in Himalaya
- B. It is the country's first robotic telescope located at the Indian Astronomical Observatory (IAO) at Hanle in Ladakh
- C. It is an initiative of the Indian Government to safeguard the Himalayan Quail
- D. It is a project of the Border Roads Organisation (BRO) in the Ladakh region

22. Consider the following statements with respect to Anaimalai flying frog:

- 1. It is endemic to the southern part of the Western Ghats.
- 2. Its IUCN status is Endangered.

Which of the above statements is/are correct?

- A. 1 only
- B. 2 only
- C. Both
- D. None

23. Which of the following statements is/are correct?

- 1. Sand is a minor mineral under the Mines and Minerals (Development & Regulation) Act, 1957.
- 2. The Act empowers the State Governments to make rules for regulating the grant of minor mineral concessions.
- 3. Central Government is the owner of the minerals underlying the ocean within the territorial waters or the Exclusive Economic Zone of India.

Options:

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

24. With reference to Indian Regional Navigation Satellite System (NavIC), which of the following statements is/are incorrect?

- 1. It is designed to provide accurate position information service to users in India as well as the

region extending up to 1500 km from its boundary.

2. ISRO has built a total of eight satellites in the IRNSS series; of which seven are currently in orbit, three of these satellites are in Geostationary Orbit (GEO) while the remaining in Geosynchronous Orbits (GSO).

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

25. In India, which of the following have the highest share in the disbursement of credit to agriculture and allied activities? (2011)

- A. Commercial Banks
- B. Cooperative Banks
- C. Regional Rural Banks
- D. Microfinance Institutions

26. With reference to EOS-03 satellite, which of the following statements is/are correct?

- 1. It is the first military communication satellite developed by the ISRO for the Indian defense forces.
- 2. It provides real-time inputs to naval warships, submarines and maritime aircraft and networking capabilities to its naval assets on the high seas.

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

27. Which of the following is/are correctly matched?

Islands	Country
1. Assumption Island	Seychelles
2. Agalega Islands	Maldives
3. Gaadhoo Island	Mauritius

Options:

- A. 1 only
- B. 1 and 3 only
- C. 2 only
- D. 1, 2 and 3

28. Consider the following statements about Surendranath Banerji:

1. Banerji was the founder of one of India's first political organizations, the Indian National Association.
2. Banerji published the newspaper 'The Bengalee'.
3. Banerji supported the Morley-Minto reforms (1909) but was a critic of the proposed method of civil disobedience advocated by Mahatma Gandhi.

Which of the above statements is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 1, 2 and 3
- D. None

29. Consider the following pairs:

Festivals in News	State
1. Sangai Festival	Manipur
2. Behdienkhlam Festival	Mizoram
3. Hornbill Festival	Nagaland

Which of the pairs given above is/are correctly matched?

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

30. There has been a persistent deficit budget year after year. Which action/actions of the following can be taken by the Government to reduce the deficit? (UPSC-2015)

1. Reducing revenue expenditure
2. Introducing new welfare schemes
3. Rationalizing subsidies
4. Reducing import duty

Select the correct answer using the code given below.

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2, 3 and 4

31. Which of the given statements with respect to the UN World Food Programme is/are correct?

1. It was founded at the United Nations World Humanitarian Summit (WHS).
2. It is headquartered in Rome, Italy.
3. It has been awarded the Nobel Peace Prize twice.

4. Its priority is to achieve SDG-2 by 2030.

Options:

- A. 1, 2 and 3 only
- B. 2, 3 and 4 only
- C. 2 and 4 only
- D. 3 and 4 only

32. Consider the following statements with respect to Abanindranath Tagore:

1. He founded the 'Indian Society of Oriental Art'.
2. Victory of Buddha is among his famous paintings.
3. He wrote 'Amar Shonar Bangla' which helped ignite a feeling of nationalism amongst people.

Which of the given statements is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 1 and 2 only
- D. 1, 2 and 3

33. The "Tigray Region" recently in news, borders which of these countries?

1. Eritrea
2. South Sudan
3. Sudan
4. Djibouti

Options:

- A. 1, 2 and 4 only
- B. 3 and 4 only
- C. 1 and 3 only
- D. 1 and 4 only

34. Which of the given statements with respect to PMGDISHA Scheme is/are correct?

1. Its objective is to enhance institutional mechanisms for skills development and increase access to quality and market-relevant training for the work force.
2. The scheme is applicable only for rural areas of the country.
3. The scheme is implemented by the Ministry of Skill Development and Entrepreneurship.
4. All households where none of the family member is digitally literate will be considered as eligible households under the Scheme.

Options:

- A. 1 only
- B. 2 and 4 only

C. 1 and 3 only

D. 1, 2, 3 and 4

35. The terms 'Wanna Cry, Petya and Eternal Blue' sometimes mentioned in the news recently are related to

A. Exo-planets

B. Crypto-currency

C. Cyber attacks

D. Mini satellites

36. Which of the given statement/s is/are correct?

1. Dara Shikoh translated Bhagavad Gita and Upanishads into Persian.

2. He is the author of Alamgirnama.

3. His book "Majma-ul-Bahrain" is a comparative study of Vedanta and Sufism.

4. Italian traveller Niccolao Manucci's 'Travels of Manucci' has a graphic description of Dara Shikoh's burial.

Options:

A. 1, 2 and 4 only

B. 3 and 4 only

C. 2 and 3 only

D. 1, 3 and 4 only

37. Which of the given statements with respect to the twin Keck Observatory telescopes is/are correct?

1. They are the world's most scientifically productive optical and infrared telescopes.

2. They are located in Atacama Desert of northern Chile.

3. The project is funded by scientific organisations of Canada, China, India, Japan and USA.

Options:

A. 1 and 3 only

B. 1 only

C. 2 only

D. 1, 2 and 3

38. Which of the given statements with respect to PM-DAKSH Yojana is/are correct?

1. It is a National Action Plan for skilling of marginalized persons covering SCs, OBCs, EBCs, Sanitation workers.

2. It is being implemented by the Ministry of Skill Development and Entrepreneurship.

3. Its components include up-skilling/reskilling, short term training programme, long term training

programme and entrepreneurship development program.

Options:

A. 1 and 2 only

B. 3 only

C. 1 and 3 only

D. 1, 2 and 3

39. Which of the given pairs is/are correctly matched?

GI Tagged product	State
1. Puanchei shawl	Assam
2. Ilkal Sarees	Andhra Pradesh
3. Tangaliya Shawl	Gujarat
4. Chakhesang Shawls	Nagaland

Options:

A. 2, 3 and 4 only

B. 1, 2 and 4 only

C. 3 and 4 only

D. 1, 2, 3 and 4

40. In India, cluster bean (Guar) is traditionally used as a vegetable or animal feed, but recently the cultivation of this has assumed significance. Which one of the following statements is correct in this context?

A. The oil extracted from seeds is used in the manufacture of biodegradable plastics

B. The gum made from its seeds is used in the extraction of shale gas

C. The leaf extract of this plant has the properties of anti-histamines

D. It is a source of high quality biodiesel

41. Consider the following pairs:

City in News	Country
1. Kunduz	Afghanistan
2. Taloqan	Pakistan
3. Sar-e-Pul	Iran

Which of the above pairs is/are correctly matched?

A. 1 only

B. 1 and 3 only

C. 2 and 3 only

D. 1, 2 and 3

42. Which of the following statements about Pradhan Mantri Ujjwala Yojana is/are correct?

1. It is a scheme of the Ministry of Petroleum & Natural Gas for providing LPG connections to women from Below Poverty Line (BPL) households.
2. The Scheme provides financial support for each LPG connection to the BPL households, interest-free loan to purchase stoves and refills by Oil Marketing Companies.

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

43. With reference to 8888 Uprising, which of the following statements is/are correct?

1. It was a series of protests and marches in Hong Kong.
2. It was against mainland China's proposal to introduce a new National Security Law.

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

44. Island of Evia recently seen in news is part of which country?

- A. Italy
- B. Greece
- C. Turkey
- D. France

45. Consider the following statements:

The parliamentary Committee on public accounts

1. Consists of not more than 25 members of the Lok Sabha.
2. Scrutinizes appropriation and finance accounts of the Government.
3. Examines the report of the Comptroller and Auditor General of India.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 3 only
- D. 1, 2 and 3

46. The grouping "extended troika" is seen in news in which of the following contexts?

- A. Regional Comprehensive Economic Partnership (RCEP) negotiations.
- B. Afghanistan peace process.
- C. The Israeli-Palestinian peace process.
- D. Abraham Accords.

47. Consider the following statements:

1. The territorial sea extends seaward up to 12 nautical miles from its baselines and includes not only the surface but also the airspace.
2. Only civilian foreign ships are allowed innocent passage through the territorial waters.
3. The U.S. has not ratified the United Nations Convention on the Law of the Sea.

Which of the given statements is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. None of the above

48. Marburg virus belongs to which of the following categories?

- A. Coronaviruses
- B. Togaviruses
- C. Paramyxoviruses
- D. Filoviruses

49. Consider the following statements with respect to ISHAAN UDAY Scheme:

1. It is a scheme launched for the financial turnaround of the Power Distribution Companies (DISCOMs) owned by the North-Eastern states.
2. The scheme is being implemented by the Ministry of Development of North Eastern Region.

Which of the given statements is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

50. Consider the following statements in respect of Trade Related Analysis of Fauna and Flora in Commerce (TRAFFIC):

1. TRAFFIC is a bureau under United Nations Environment Programme (UNEP).
2. The mission of TRAFFIC is to ensure that trade

in wild plants and animals is not a threat to the conservation of nature.

Which of the above statements is/are correct? [UPSC 2017]

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

51. Consider the following statements with respect to International Seabed Authority (ISA):

1. It is an autonomous international organization established under the 1982 United Nations Convention on the Law of the Sea (UNCLOS).
2. It makes binding recommendations to coastal States on matters related to the establishment of outer limits of the continental shelf extending beyond 200 nautical miles from the baselines.
3. All mineral-related activities in the international seabed area beyond the limits of national jurisdiction are regulated by ISA.
4. ISA is committed to contributing to the timely and effective implementation of SDG-6 in particular.

Which of the given statements is/are correct?

- A. 1 and 2 only
- B. 1, 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 4 only

52. Global Environment Facility functions as a financial mechanism for which of the following convention/s?

1. Minamata Convention on Mercury
2. Stockholm Convention on Persistent Organic Pollutants (POPs)
3. United Nations Convention on Biological Diversity (UNCBD)
4. United Nations Convention to Combat Desertification (UNCCD)
5. United Nations Framework Convention on Climate Change (UNFCCC)

Options:

- A. 3, 4 and 5 only
- B. 5 only
- C. 1, 2 and 5 only
- D. 1, 2, 3, 4 and 5

53. He started a movement in the Bihar and Jharkhand belt in the 19th century under British colonial rule. As a result of his struggle, the Chotanagpur Tenancy Act was passed in 1908. He is also known as 'Dharti Abba'.

The tribal leader being talked about is:

- A. Kanhu Murmu
- B. Birsa Munda
- C. Tirut Singh
- D. Bar-Manik

54. Which of these mountain passes is/are located in Ladakh?

1. Zoji La
2. Nathu La
3. Bomdi La
4. Muling La

Option:

- A. 1 and 4 only
- B. 2 and 3 only
- C. 1 only
- D. 1, 3 and 4

55. "Momentum for Change: Climate Neutral Now" is an initiative launched by: (UPSC-2018)

- A. The Intergovernmental Panel on climate change
- B. The UNEP Secretariat
- C. The UNFCCC Secretariat
- D. The World Meteorological Organization

56. Which of the given statements with respect to Quality of Life for Elderly Index is/are correct?

1. The Index was created by NITI Aayog to shed light on problems faced by elderly citizens in India.
2. Its framework includes four pillars of Financial Well-being, Social Well-being, Health System and Income Security.

Options:

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

57. Which among the following is/are Earth Observation Satellites?

1. Megha-Tropiques
2. SARAL
3. OCEANSAT

4. IRNSS-1A

5. Bhaskara-I

Options:

A. 2 and 3 only

B. 1, 2 and 4 only

C. 1, 2, 3 and 5 only

D. 3 and 5 only

58. Which of the given statements is/are correct?

1. The demographic dividend is the economic growth potential resulting out of changing population age structure in a country.

2. When the dependency ratio is minimum and the age pyramid shows a bulge in the middle portion, a country is said to be in the 'demographic dividend' phase.

3. In India, the year 2018 is known as the year of the demographic divide.

Options:

A. 1 and 2 only

B. 3 only

C. 1 only

D. 1, 2 and 3

59. Which of the given pairs is/are correctly matched?

Centres of the Revolt of 1857 who suppressed the Revolt	British Generals
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1. Jhansi	Sir Colin Campbell
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2. Lucknow	Sir Hugh Rose
------------	---------------

3. Delhi	John Nicholson
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Options:

A. 1 and 2 only

B. 3 only

C. 2 and 3 only

D. 1, 2 and 3

60. 'Doctors without Borders (Medecins Sans Frontieres)', often in the news, is [UPSC 2015]

A. A division of World Health Organization

B. A non-governmental international organization

C. An inter-governmental agency sponsored by European Union

D. A specialized agency of the United Nations

61. Which of the given statements with respect to Central Vigilance Commission is/are correct?

1. The CVC was established as a statutory body on the recommendations of the Santhanam Committee.

2. The Central Vigilance Commission is controlled by the Home Ministry.

3. The Central Vigilance Commissioner is appointed by the President on the recommendation of a committee consisting of the Prime Minister, the Home Minister and the Leader of the Opposition in the Lok Sabha.

Options:

A. 1 only

B. 3 only

C. 2 and 3 only

D. 1, 2 and 3

62. "Global Stringency Index", in news, is:

A. A qualitative measure of the regulations in place for businesses and protections of property rights in a country.

B. An annual assessment of the countries' press freedom records.

C. A measure introduced during the COVID-19 pandemic to evaluate how strict a country's policies & curbs were, and at what stage of the pandemic spread it enforced these.

D. A measure evaluating the level of liberalization of a country's economy.

63. Which of the given statements is/are correct?

1. The Constitution of India gives the government the right to levy taxes on individuals and organisations.

2. Seventh Schedule of the Constitution puts separate heads of taxation under the Union, State and the Concurrent list.

3. Union and the states do not have concurrent power of taxation.

4. A State Legislature may by law authorise a Municipality to levy and collect taxes.

Which of the given statement/s is/are correct?

A. 1, 3 and 4 only

B. 1 and 3 only

C. 3 and 4 only

D. 1, 2 and 3

64. Which of the given statements best describes the "Monroe Doctrine"?
- A revenue rule introduced by Sir Thomas Monroe as the Governor of Madras in 1820.
 - A U.S Foreign Policy regarding domination of the American continent in 1823.
 - US military doctrine towards China and East Asia, crafted in 2018.
 - Annexation policy applied by the British East India Company in India until 1859.
65. Which one of the following objectives is not embodied in the Preamble to the Constitution of India?
- Liberty of thought
 - Economic liberty
 - Liberty of expression
 - Liberty of belief
66. Consider the following statements regarding Competition Commission of India (CCI):
- It is an extra-constitutional body established via a Central Govt. notification.
 - It consists of a chairperson and 4 Members appointed by the Central Government.
 - It is the duty of the Commission to protect the interests of consumers.
- Which of the above statements is/are correct?
- Only 1
 - Only 1 & 2
 - Only 2 & 3
 - Only 3
67. Which of the following is/are the objectives of 'Voluntary Vehicle-Fleet Modernisation Programme'?
- Creation of a viable circular economy.
 - Minimising the use of resources, generation of waste, pollution and carbon emissions.
- Select the option from below:
- Only 1
 - Only 2
 - Both
 - None
68. 'Brasilia Declaration' led to the establishment of:
- IBSA
 - BRICS
 - SAARC
 - SCO
69. Which of the following is/are part of India's investments in Afghanistan?
- Salma Dam
 - Zaranj-Delaram highway
 - The Afghan Parliament in Kabul
 - Restoration of the Stor Palace project
- Select the correct option from below:
- 1 & 2
 - 1, 2 & 3
 - 2, 3 & 4
 - All of the Above
70. With reference to India's biodiversity, Ceylon frogmouth, Coppersmith barbet, Gray-chinned minivet and White-throated redstart are (UPSC 2020)
- Birds
 - Primates
 - Reptiles
 - Amphibians
71. 'Khyber Pass' is a mountain pass between:
- Pakistan & Afghanistan
 - Afghanistan & Uzbekistan
 - Afghanistan & Tajikistan
 - Afghanistan & Turkmenistan
72. Which of the following is/are likely reasons for judicial delays?
- Ambiguity in laws
 - Low judges to population ratio
 - Judicial vacancies
 - Parliamentary democracy
- Select the correct option from below:
- 1 & 2
 - 1, 2 & 3
 - 2 & 3
 - All of the Above

73. 'Operation Meghdoot' was an:

- A. Operation to seize control of the Siachen Glacier
- B. Operation to end the rule of the Nizam of Hyderabad
- C. Indian operation to push back the infiltrators from the Kargil Sector
- D. Indian Army-led rescue and relief mission in quake-hit Nepal

74. Which of the following is/are correctly matched?

Water Disputes	States Concerned
1. Vansadhara Water Dispute	A. Andhra Pradesh, Odisha
2. Ravi & Beas Water Dispute	B. Punjab, Haryana, Rajasthan
3. Mahadayi Water Dispute	C. Goa, Karnataka, Maharashtra
4. Mahanadi Water Dispute	D. Chhattisgarh, Odisha

Select the correct option from below:

- A. 1-A, 2-B, 3-C, 4-D
- B. 1-D, 2-C, 3-B, 4-A
- C. 1-B, 2-A, 3-D, 4-C
- D. 1-A, 2-C, 3-B, 4-D

75. In the context of Indian history, the Rakhmabai case of 1884 revolved around (UPSC 2020)

- 1. Women's right to gain education
- 2. Age of consent
- 3. Restitution of conjugal rights

Select the correct answer using the code given below:

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

76. Which of the given statements with respect to Climate Change Performance Index (CCPI) is/are INCORRECT?

- 1. It is an annual index designed and published by Intergovernmental Panel on Climate Change (IPCC).
- 2. It assesses national performances based on GHG Emissions, Renewable Energy, Energy Use and Climate Policy.
- 3. India is among the top 10 countries in CCPI 2021.

Options:

- A. 1 only
- B. 1 and 2 only
- C. 3 only
- D. None of the above

77. Which of the given statements with respect to Visceral Leishmaniasis is/are INCORRECT?

- 1. It is one of the neglected tropical diseases caused by a protozoan parasite.
- 2. It is transmitted by the bite of female Phlebotomine sandflies.
- 3. It is endemic to the Indian subcontinent.
- 4. In India, humans are the only known reservoirs of the infection.

Options:

- A. 2 and 4 only
- B. 1 and 3 only
- C. 3 and 4 only
- D. None of the above

78. Which of the given statements with respect to National Centre for Disease Control (NCDC) is/are correct?

- 1. It had its origin as the Central Malaria Bureau.
- 2. It is the nodal agency in India for the surveillance, prevention and control of both communicable and non-communicable diseases.
- 3. World Health Organization funded Integrated Disease Surveillance Program (IDSP) is a unit under the NCDC.

Options:

- A. 1 only
- B. 3 only
- C. 1 and 2 only
- D. 1, 2 and 3 only

79. Who among the following cannot receive foreign contribution as per the Foreign Contributions Regulation Act (FCRA)?

- 1. Political party
- 2. A candidate for election
- 3. Publisher of a registered Newspaper
- 4. Member of any legislature
- 5. Editor or correspondent of a registered Newspaper

Options:

- A. 1 and 2 only

- B. 2 and 4 only
- C. 1, 2, 3 and 4 only
- D. 1, 2, 3, 4 and 5

80. Consider the following pairs (UPSC-2019):

Movement: Organization Leader

1. All India Anti-Untouchability League: Mahatma Gandhi
2. All India Kisan Sabha: Swami Sahajanand Saraswati
3. Self Respect Movement: E.V. Ramaswami Naicker

Which of the pairs given above is/are correctly matched?

- A. 1 only
- B. 1 and 2 only
- C. 2 and 3 only
- D. 1, 2 and 3

81. Which of the given statements with respect to Financial Inclusion (FI) Index is/are correct?

1. It is an index launched by RBI incorporating the details of banking, investments, insurance, postal and the pension sector.
2. It comprises three broad parameters – Access, Usage and Quality with the highest weightage to Access.
3. The base year for FI-Index would be FY 2020-21.

Options:

- A. 1 and 3 only
- B. 2 and 3 only
- C. 1 only
- D. 1, 2 and 3

82. Which of the given statements with respect to the Atal Innovation Mission (AIM) is/are correct?

1. It is a flagship initiative of the Ministry of Science and Technology.
2. It has the dual objective of Entrepreneurship promotion and Innovation promotion.
3. ARISE-ANIC was launched under the mission to promote a creative, innovative mindset in schools by setting up dedicated innovation workspaces.

Options:

- A. 2 only
- B. 1 and 3 only

- C. 2 and 3 only
- D. None of the above

83. Shishu, Kishore, Tarun - 3 categories of intervention are linked with which of the following government schemes/programs?

- A. Mission Indradhanush
- B. PM Janani Suraksha yojana
- C. Pradhan Mantri Mudra Yojana
- D. Pradhan Mantri Kisan Sampada Yojana

84. Which of the given statements best describes the Indian Army's 'Operation Sadbhavana'?

- A. Humanitarian assistance that supplied relief packages to Rohingya refugees in Bangladesh.
- B. Civilian outreach program in Jammu and Kashmir aimed at winning the hearts and minds of residents of the two Union Territories.
- C. Civic action programs for people in the North Eastern states of India for developing harmonious feelings and positive attitude towards the army.
- D. Evacuation operation launched to bring back diplomats and security personnel stranded in the Indian Embassy in Kabul in the wake of intense fighting between Afghan forces and the Taliban militants.

85. With reference to the cultural history of India, which one of the following is the correct description of the term 'paramitas'? [UPSC 2020]

- A. The earliest Dharmashastra texts written in aphoristic (sutra) style.
- B. Philosophical schools that did not accept the authority of Vedas.
- C. Perfections whose attainment led to the Bodhisattva path
- D. Powerful merchant guilds of early medieval South India.

86. Which of the given statements is/are correct?

1. The main objective of the Vienna Convention and the Montreal Protocol is the protection of the ozone layer.
2. Under the Kigali Amendment, Parties to the Montreal Protocol will phase down the production and consumption of Hydrochlorofluorocarbons.
3. Hydrofluorocarbons are massively potent greenhouse gases that cause the massive destruction of stratospheric ozone.

Options:

- A. 1 only
- B. 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

87. Which of the given statements is/are INCORRECT w.r.t Speaker of the Lok Sabha:

1. It is mandatory for the Speaker to resign from the political party soon after he/she is elected in order to honour the constitutional obligation of independence and impartiality.
2. The Speaker is empowered to order the suspension of a member from the house and revoke such an order.
3. When the Lok Sabha is dissolved the Speaker shall vacate his/her office immediately.

Options:

- A. 1 and 3 only
- B. 2 and 3 only
- C. 1, 2 and 3
- D. 1 only

88. Which of the given statements with respect to Indian Ocean Rim Association (IORA) is/are correct?

1. It was formed by an initiative of India and South Africa.
2. All the QUAD members are among its member nations.
3. Indian Ocean Dialogue (IOD) is a flagship initiative of IORA.
4. It has set up the Information Fusion Centre – Indian Ocean Region (IFC-IOR) at Gurugram.

Options:

- A. 2 only
- B. 1 and 3 only
- C. 1, 2 and 4 only
- D. 3 and 4 only

89. Consider the following pairs:

Festivals	Tribes
1. Wanchuwa	Tiwa
2. Nyokum	Nyishi
3. Myoko	Lushai

Options:

- A. 3 only
- B. 2 and 3 only

C. 1 and 2 only

D. 1, 2 and 3

90. 'Broad-based Trade and Investment Agreement (BTIA)' is sometimes seen in the news in the context of negotiations held between India and

- A. European Union
- B. Gulf Cooperation Council
- C. Organization for Economic Cooperation and Development
- D. Shanghai Cooperation Organization

91. Which of the following statements is/are correct?

1. In India, sugarcane is grown as a Kharif Crop.
2. Sugarcane prices are determined by both the Centre as well as States.
3. The Fair and Remunerative Price (FRP) of sugarcane is approved by the Commission for Agricultural Costs and Prices (CACP).
4. India produces more sugar than it consumes.

Options:

- A. 1, 2 and 4 only
- B. 1 and 2 only
- C. 2 and 3 only
- D. 1, 2, 3 and 4

92. Which of the following is/are the schemes launched under National Mission for Enhanced Energy Efficiency (NMEEE)?

1. Energy Efficiency Financing Platform (EEFP)
2. Perform Achieve and Trade Scheme (PAT)
3. Ujjwal DISCOM Assurance Yojana (UDAY)
4. Market Transformation for Energy Efficiency (MTEE)
5. Framework for Energy Efficient Economic Development (FEEED)

Options:

- A. 2 and 3 only
- B. 1, 4 and 5 only
- C. 2, 3, 4 and 5 only
- D. 1, 2, 4 and 5 only

93. The Indian Navy undertook bilateral exercise 'Zayed Talwar 2021' with

- A. Saudi Arabia
- B. United Arab Emirates
- C. Qatar

D. Bahrain

94. This port is strategically located on South Eastern coastline of Oman. It straddles along critical sea lanes in Arabian Sea and Gulf of Aden. In 2018, India secured access to this Port for military use and logistical support.

The port being talked about is:

- A. Port of Khasab
- B. Chabahar Port
- C. Duqm Port
- D. Bandar Abbas Port

95. Which of the following is/are famous for Sun temples?

- 1. Arasavalli
- 2. Amarakantak
- 3. Omkareshwar

Select the correct answer using the code given below: [UPSC 2017]

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

96. Which of the given statement/s with respect to Green Hydrogen is/are INCORRECT?

- 1. Hydrogen is labelled Green Hydrogen when the carbon emission generated from the production process is captured and stored.
- 2. Pyrolysis is the process followed for its production.
- 3. This is the cleanest form of hydrogen generation since the by-products are just water and water vapour.

Options:

- A. 1 and 3 only
- B. 2 and 3 only
- C. 1 and 2 only
- D. None of the above

97. Which of these UNESCO World Heritage Sites in are known for the Stone Chariots?

- 1. Mahabalipuram
- 2. Konark Sun Temple
- 3. Pattadakal
- 4. Hampi

Options:

- A. 1, 2 and 4 only
- B. 2 and 3 only
- C. 1 and 4 only
- D. 1, 2, 3 and 4

98. Which of the following steps have been taken by the Government to promote indigenization in the defence sector?

- 1. Up to 51% FDI is allowed through the Automatic Route in the Defence Sector.
- 2. Up to 100% FDI is allowed by Government Route in the Defence Sector.
- 3. Setting up of Innovations for Defence Excellence (iDEX) framework.
- 4. Notifying positive indigenisation list.

Options:

- A. 3 and 4 only
- B. 2, 3 and 4 only
- C. 1, 2 and 4 only
- D. 1, 2, 3 and 4

99. Which of the given statements with respect to Majuli island is/are correct?

- 1. It is the nerve centre of neo-Vaishnavite spiritualism.
- 2. It is the only geo-heritage site in Assam.
- 3. It is one of the smallest inhabited islands in the Brahmaputra and a floating wildlife habitat.

Options:

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 only
- D. 1, 2 and 3

100. With reference to Pradhan Mantri Kaushal Vikas Yojana, consider the following statements:

- 1. It is the flagship scheme of the Ministry of Labour and Employment.
- 2. It, among other things, will also impart training in soft skills, entrepreneurship, financial and digital literacy.
- 3. It aims to align the competencies of the unregulated workforce of the country to the National Skill Qualification Framework.

Which of the statements given above is/are correct ?

- A. 1 and 3 only
- B. 2 only
- C. 2 and 3 only
- D. 1, 2 and 3

101. Which of the following statements is/are correct with respect to Narcotic Drugs and Psychotropic Substances (NDPS) Act?

1. NDPS Act views drug offences very seriously and penalties are uniform irrespective of the quantity
2. It is only the central government which can add or omit from the list of psychotropic substances

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

102. With reference to Madurkathi mats, which of the following statements is/are incorrect?

1. They are woven in Bihar
2. Women of the households are involved in weaving

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

103. Which of the following is/are Erosional landforms due to Glaciers?

1. Cirque
2. Esker
3. Moraine

Options:

- A. 1 only
- B. 1 and 2 only
- C. 2 and 3 only
- D. 1, 2 and 3

104. Consider the following statements:

1. It is a region in the North-central Afghanistan near the Hindu Kush mountain range.
2. It is Afghanistan's last remaining holdout where anti-Taliban forces seem to be working on forming a guerrilla movement

The above statements best describes:

- A. Spin Boldak
- B. Panjshir Valley
- C. Mazar-i-Sharif
- D. Kunduz

105. Consider the following statements:

1. The Legislative Council of a State in India can be larger in size than half of the Legislative Assembly of that particular State
2. The Governor of a State nominates the Chairman of Legislative Council of that particular State.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

106. Consider the following statements:

1. Every Census in independent India from 1951 to 2011 has published data on Scheduled Castes and Scheduled Tribes, but not on other castes.
2. The responsibility of conducting the decennial Census rests with the Office of the Registrar General and Census Commissioner, India which come under the Ministry of Statistics and Programme Implementation.

Which of the above statements is/are correct?

- A. Only 1
- B. Only 2
- C. Both
- D. None

107. Which of the following was/were the objectives of the Socio-Economic and Caste Census (SECC) 2011?

1. To enable households to be ranked based on their Socio-Economic status.
2. To make available authentic information that will enable caste-wise population enumeration of the country.
3. To make available authentic information regarding the socio-economic condition, and education status of various castes and sections of the population.

Select the correct option from below:

- A. Only 1
- B. Only 2
- C. 1 & 3 only
- D. All of the above

108. Which of the following statements regarding Malabar Naval Exercise is/are correct?

- 1. It focuses on Passage Exercises amongst the 4 Quad countries.
- 2. It started in 1992 as a bilateral exercise between the Indian and US navies.
- 3. Japan joined the exercise in 2015.

Select the correct option from below:

- A. 1 & 2
- b. 1 & 3
- C. 2 & 3
- D. All of the above

109. Consider the following statements regarding the Office of the United Nations High Commissioner for Refugees:

- 1. The Statute of the Office of the United Nations High Commissioner for Refugees was adopted by the United Nations General Assembly in 1950.
- 2. The High Commissioner reports annually to the General Assembly.
- 3. The work of the High Commissioner shall be of an entirely non-political character.

Which of the above statements is/are correct?

- A. 1 & 2
- B. 1 & 3
- C. 2 & 3
- D. All of the above

110. The Gandhi-Irwin Pact included which of the following? (UPSC-2020)

- 1. Invitation to Congress to participate in the Round Table Conference
- 2. Withdrawal of Ordinances promulgated in connection with the Civil Disobedience Movement
- 3. Acceptance of Gandhiji's suggestion for enquiry into police excesses
- 4. Release of only those prisoners who were not charged with violence

Select the correct answer using the code given below:

- A. 1 only
- B. 1, 2 and 4 only

- C. 3 only
- D. 2, 3 and 4 only

111. Which of the given statements best describes the recently launched "Yuktdhara" portal?

- a. A portal launched for planning, coordination, execution and monitoring of Skill Development Initiatives.
- b. An online repository of assets created under various national rural development programmes such as MGNREGA, Integrated Watershed Management Programme etc.
- c. A platform for effective enforcement of the no child labour policy.
- d. A data repository for all the meteorological missions of ISRO and deals with weather-related information, oceanography, and tropical water cycles.

112. Consider the following statements with respect to Chakmas and Hajongs:

- 1. They came to India from Bhutan after being displaced due to the submergence of their land due to the construction of the Kaptai dam.
- 2. Chakmas are predominantly Buddhists and Hajongs are Hindus.
- 3. They are both identified as Particularly Vulnerable Tribal Groups (PVTGs).

Which of the given statements is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 2 only
- D. 1, 2 and 3

113. "SARTHAQ" often in news is:

- A. An initiative launched to improve the proficiency in reading and numeracy among children in the age group of 3 to 9 years.
- B. An implementation plan for school education launched in pursuance of the goals of National Education Policy 2020.
- C. National teachers' platform built to host Open Educational Resources (OER) and tools for teachers in schools, teacher educators in Teacher Education Institutes (TEIs) and student teachers.
- D. An initiative to provide skills and right competencies to women so that they can take up gainful employment.

114. Which of the given statements is/are correct?

1. India has signed an Inter-Governmental Agreement with Russia for the supply of Krivak stealth frigates.
2. Two Krivak class stealth ships are being built with technology transfer from Russia by Goa Shipyard Ltd. (GSL) under 'Make in India'.
3. Krivak class frigates have been inducted into the Indian Navy under the Talwar class and the Teg class.

Options:

- A. 1 only
- B. 1 and 3 only
- C. 2 only
- D. 1, 2 and 3

115. With reference to 'Financial Stability and Development Council', consider the following statements:

1. It is an organ of NITI Aayog.
2. It is headed by the Union Finance Minister.
3. It monitors macroprudential supervision of the economy.

Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 3 only
- C. 2 and 3 only
- D. 1, 2 and 3

116. In the efforts to meet the goals of the Paris Agreement, the 'Climate Action and Finance Mobilization Dialogue' (CAFMD) is a part of the partnership between India and

- A. European Union
- B. United Kingdom
- C. United States of America
- D. Australia

117. Which of the given statements with respect to Global Manufacturing Risk Index is/are correct?

1. It is published annually by the World Bank.
2. India has become the second most desired manufacturing destination according to the Global Manufacturing Risk Index 2021.
3. The Index ranks 190 countries against each other assessing costs, risks and conditions impacting manufacturing.

Options:

- A. 1 and 3 only
- B. 2 only
- C. 1 and 2 only
- D. 2 and 3 only

118. Consider the following statements with respect to Nidhi companies:

1. It is a type of company in the Indian non-banking finance sector, recognized under section 406 of the Companies Act, 2013.
2. Its core business involves lending and borrowing money between its members or shareholders.
3. Nidhi company does not require a license from the Reserve Bank of India (RBI) to operate.

Which of the given statements is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 2 only
- D. 1, 2 and 3

119. Which of the given statements with respect to Lebanon is/are INCORRECT?

1. It opens out to the Mediterranean Sea to the West.
2. It borders Israel, Syria and Jordan.
3. It touches the West Bank area.

Options:

- A. 1 only
- B. 2 and 3 only
- C. 1 and 2 only
- D. None of the above

120. In the context of the developments in Bioinformatics, the term 'transcriptome', sometimes seen in the news, refers to [UPSC 2016]

- A. A range of enzymes used in genome editing
- B. The full range of mRNA molecules expressed by an organism
- C. The description of the mechanism of gene expression
- D. A mechanism of genetic mutations taking place in cells

121. Which of the following is/are correct regarding e-Shram?

1. It is a database of unorganised sector workers.
2. e-Shram card contains a 12 digit unique number which will help the card holders access social

security schemes.

3. It was launched in 2020.

Select the correct option from below:

- A. 1 & 2
- B. 1 & 3
- C. 2 & 3
- D. All of the Above

122. Which of the following statements regarding the Start-up Accelerators of MeitY for product Innovation, Development and growth (SAMRIDH) is correct?

- A. It aims at allowing direct overseas listing of Indian start-ups.
- B. The programme aims to boost the start-up ecosystem in the country where 300 startups will be provided funding support of 40 Lakhs.
- C. Both (a) and (b)
- D. Neither (a) nor (b)

123. Which of the following is/are correctly matched?

Plant	Country
1. Metsamor Nuclear Power Plant	India
2. Fukushima Daiichi Nuclear Power Plant	Japan
3. Fordow Fuel Enrichment Plant	Iran
4. Kudankulam Nuclear plant	Armenia

Select the correct option from below:

- A. 1 & 2
- B. 1 & 3
- C. 2 & 3
- D. Only 2

124. Consider the following statements:

- 1. Securities and Exchange Board of India (SEBI) was established in 1988 as a statutory body for regulating the securities market.
- 2. An appeal against the order of SEBI can be directly filed in the Supreme Court.
- 3. SEBI has no power to freeze the bank accounts of a violator.

Which of the above statements is/are incorrect?

- A. 1 & 2
- B. 1 & 3
- C. 2 & 3
- D. All of the Above

125. Which one of the following protected areas is well-known for the conservation of a sub-species of the Indian swamp deer (Barasingha) that thrives well on hard ground and is exclusively graminivorous? (UPSC 2020)

- A. Kanha National Park
- B. Manas National Park
- C. Mudumalai Wildlife Sanctuary
- D. Tal Chhapar Wildlife Sanctuary

126. Right to privacy includes which of the following rights?

- 1. Right to be left alone
- 2. Right to be forgotten
- 3. Freedom of Silence

Options:

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

127. With reference to Sambhar Lake, which of the following statements is/are correct?

- 1. It is India's largest inland salt lake in Rajasthan.
- 2. It is surrounded by the Aravali hills on all sides.
- 3. Sambhar has been designated as a Ramsar site.

Options:

- A. 1 only
- B. 1 and 3 only
- C. 3 only
- D. 1, 2 and 3

128. Consider the following statements with respect to Universal Postal Union:

- 1. It is a United Nations specialized agency.
- 2. It was established by the Treaty of Rome.
- 3. It is the oldest international organization worldwide.
- 4. Its headquarters is located in Geneva, Switzerland.

Which of the above statements is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 1, 2 and 3 only
- D. 1, 2, 3 and 4

129. Which of the following statements is/are right about Drone Rules 2021?

1. The total number of forms that were to be filled has been reduced.
2. The government has done away with the need for a security clearance prior to the issuance of a registration or licence.
3. Foreign ownership has been discontinued.

Options:

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

130. What was/were the object/objects of Queen Victoria's Proclamation (1858)?

1. To disclaim any intention to annex Indian States.
2. To place the Indian administration under the British Crown.
3. To regulate East India Company's trade with India.

Select the correct answer using the code given below.

- A. 1 and 2 only
- B. 2 only
- C. 1 and 3 only
- D. 1, 2 and 3

131. Consider the following statements:

1. Ten Degree Channel separates the Nicobar Islands from the Andaman Islands.
2. Great Nicobar Biosphere Reserve is included in the list of Man and Biosphere Program of UNESCO.

Which of the above statements is/are correct?

- A. 1 only
- B. 2 only
- C. Both
- D. None

132. The Battle of Jamrud was fought between

- A. British Empire against the Konbaung Dynasty
- B. Timurids under Babur and the Afghans under Ibrahim Lodi
- C. Gorkhali army of the Kingdom of Nepal and the British forces of the East India Company
- D. Emirate of Afghanistan and the Sikh Empire

133. Consider the following statements:

1. Upstream Oil and Gas Industry includes the searching for potential underground or underwater crude oil and natural gas fields.
2. Companies that handle operations in the Upstream oil and gas sector are closest to the customers.

Which of the above statements is/are correct?

- A. 1 only
- B. 2 only
- C. Both
- D. None

134. A 'black hole' is a body in space which does not allow any radiation to come out. This is due to its

- A. Large Size
- B. Small Size
- C. Low Density
- D. High Density

135. With reference to Balance of Payments, which of the following constitutes/constitute the Current Account? (UPSC 2014)

1. Balance of trade
2. Foreign assets
3. Balance of invisibles
4. Special Drawing Rights

Select the correct answer using the code given below.

- A. 1 only
- B. 2 and 3
- C. 1 and 3
- D. 1, 2 and 4

136. Which one of the following supercontinent existed during the late Neoproterozoic era?

- A. Rodinia
- B. Vaalbara
- C. Panthalassa
- D. Pangaea

137. Consider the following statements:

1. BCG vaccine is currently the only licensed vaccine for TB
2. Farther a country is from the equator, the higher is the efficacy of BCG Vaccine

Which of the above statements is/are correct?

- A. 1 only
- B. 2 only
- C. Both
- D. None

138. Oodaaq Island recently seen in news is part of

- A. Japan
- B. Indonesia
- C. Greenland
- D. Antarctica

139. With reference to Armed Forces Special Powers Act (AFSPA), which of the following statements is/are correct?

- 1. Under AFSPA the choice of declaring any area as 'disturbed' vests only with the Central Government.
- 2. The Act is not uniform in nature as it contains different sections as applicable to the situation in each state.
- 3. Second Administrative Reforms Commission recommended that AFSPA should be repealed

Options:

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

140. Which of the following adds/add carbon dioxide to the carbon cycle on the planet Earth?

- 1. Volcanic action
- 2. Respiration
- 3. Photosynthesis
- 4. Decay of organic matter

Select the correct answer using the code given below.

- A. 1 and 3 only
- B. 2 only
- C. 1, 2 and 4 only
- D. 1, 2, 3 and 4

141. POSHAN Abhiyaan is the Government of India's flagship programme to improve nutritional outcomes for which of the following sections of the society?

- 1. Adolescent Girls
- 2. Children
- 3. Disabled
- 4. Pregnant women and lactating mothers

5. Senior Citizens

Options:

- A. 1 and 2 only
- B. 1, 2 and 4 only
- C. 2, 3, 4 and 5 only
- D. 1, 2, 3, 4 and 5

142. India entered into Reciprocal Exchange of Logistics Agreement (RELOS) with which among the following countries?

- A. Japan
- B. Australia
- C. USA
- D. Russia

143. Consider the following statements regarding the Central Bureau of Investigation (CBI):

- 1. It operates under the jurisdiction of the Ministry of Home Affairs.
- 2. CBI derives power to investigate from the Delhi Special Police Establishment Act, 1946.
- 3. The Director of CBI has been provided security of two-year tenure, by the Lokpal and Lokayukta Act, 2013.

Which of the above statements is/are incorrect?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

144. Consider the following statements with respect to the South China Sea:

- 1. It is the connecting link between the Indian Ocean and the Pacific Ocean.
- 2. It is connected by Taiwan Strait with the East China Sea and by Luzon Strait with the Philippine Sea.
- 3. The Scarborough Shoal is claimed by the Philippines, China, and Taiwan.

Which of the above statements is/are correct?

- A. 1 only
- B. 1 and 2 only
- C. 2 and 3 only
- D. 1, 2 and 3

145. Who among the following Mughal emperors shifted emphasis from illustrated manuscripts to the album and individual portraits? [UPSC 2019]

- A. Humayun
- B. Akbar
- C. Jahangir
- D. Shah Jahan

146. Which of the following is/are the Mountain railways of India and are designated as UNESCO World Heritage Site?

- 1. Darjeeling Himalayan Railway
- 2. Nilgiri Mountain Railway
- 3. Kalka–Shimla Railway
- 4. Kangra Valley Railway
- 5. Matheran Light Railway

Options:

- A. 1, 2 and 3 only
- B. 2, 3 and 4 only
- C. 1, 3, 4 and 5 only
- D. 1, 2, 3, 4 and 5

147. Consider the following statements:

- 1. They are a fine variant of shawls spun from cashmere wools.
- 2. These shawls were indicators of wealth and part of a rich woman's dowry in India, Nepal and Pakistan.
- 3. It has been registered under Geographical Indications registry of India

The above statements best describe:

- A. Shahtoosh shawl
- B. Kani Shawl
- C. Pashmina shawl
- D. Paisley shawl

148. 38th parallel recently seen in news demarcates

- A. USA and Mexico
- B. Turkey and Syria
- C. North and South Korea
- D. Africa and Europe

149. With reference to Partnership for Clean Fuels and Vehicles (PCFV), Which of the following statements is/are correct?

- 1. It is the European Union's (EUs) action to curb air pollution by cars
- 2. It is the only global-scale effort dedicated to cleaner air and lower greenhouse gas emissions from road transport through the introduction of cleaner fuels and vehicles

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

150. Brominated flame retardants are used in many household products like mattresses and upholstery. Why is there some concern about their use? (UPSC 2014)

- 1. They are highly resistant to degradation in the environment.
- 2. They are able to accumulate in humans and animals.

Select the correct answer using the code given below.

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

ANSWER KEYS

1	B
2	D
3	A
4	D
5	B
6	C
7	D
8	A
9	D
10	B
11	A
12	C
13	A
14	C
15	B
16	A
17	C
18	A
19	D
20	C

21	D
22	A
23	D
24	B
25	A
26	D
27	A
28	C
29	C
30	C
31	C
32	C
33	C
34	B
35	C
36	D
37	B
38	C
39	C
40	B

41	A
42	C
43	D
44	B
45	B
46	B
47	C
48	D
49	D
50	B
51	C
52	D
53	B
54	C
55	C
56	B
57	C
58	A
59	B
60	B

61	B
62	C
63	A
64	B
65	B
66	D
67	C
68	A
69	D
70	A
71	A
72	B
73	A
74	A
75	B
76	A
77	D
78	A
79	D
80	D

81	C
82	A
83	C
84	B
85	C
86	A
87	C
88	B
89	C
90	A
91	A
92	D
93	B
94	C
95	A
96	C
97	A
98	B
99	C
100	C

101	B
102	A
103	A
104	B
105	D
106	A
107	D
108	C
109	D
110	B
111	B
112	C
113	B
114	D
115	C
116	C
117	B
118	D
119	B
120	B

121	A
122	B
123	C
124	D
125	A
126	A
127	D
128	A
129	A
130	A
131	C
132	D
133	A
134	D
135	C
136	A
137	C
138	C
139	B
140	C

141	B
142	D
143	C
144	D
145	C
146	A
147	C
148	C
149	B
150	C

MAINS PRACTICE QUESTIONS

GS Paper 1

social Issues

1. Remembrances of mass killings and collective violence can play an important part in societies seeking forgiveness for the crimes they committed against humanity and resolving that they will never let those terrible events happen again. Comment. (15 marks, 250 words)
2. Gender parity in the Army is happening at a slow pace, and is mostly led by the courts. Explain the statement with the help of relevant examples. (10 Marks, 150 Words)
3. Sexism and misinformation intimidate women from taking vocal stands and are antithetical to a progressive society. Elaborate. (10 Marks, 150 Words)

Geography

1. Discuss the effect of climate change on the Atlantic Meridional Overturning Circulation (AMOC). (10 Marks, 150 Words)

GS Paper 2

Polity

1. Write a note on Assam- Nagaland border dispute. (10 Marks, 150 Words)
2. OBC reservation in All-India Quota medical seats puts an end to a discriminatory policy. Critically analyze. (250 words; 15 marks)
3. The criminalization of begging is a result of colonial elitist view. Instead, it should be viewed as a socio-economic welfare problem. Critically analyze in the light of the recent observations of the Supreme Court. (250 words; 15 marks)
4. The nature of the division of powers in India and the EU brings the unions into conflict with their constituent parts? Analyse. (250 words; 15 marks)
5. Write a detailed note on 'Right to Strike' in the Indian context, with focus on essential workers and security forces. (250 words; 15 marks)
6. Attempts to curb the growth of 'Games of skill', by making it illegal or classifying it as gambling are misdirected. Do you agree? Substantiate. (10 Marks, 250 Words)
7. 'To change 50% reservation limit is to have a society which is not founded on equality but based on caste rule'. Critically analyse. (10 marks, 150 words)
8. Should States have their own flags in India? Critically Examine. (15 Marks, 250 Words) (GS 2 Polity)
9. Tribunals must not be seen as an extension of the executive. Justify. (15 marks, 250 words)
10. It is vital that important pieces of legislation are scrutinized by standing committees, which will have the advantage not only of eliciting replies from the executive but also inputs from the wider civil society, before the statute is framed. Justify. (15 marks, 250 words)
11. Judicial reforms are the need of the hour, as the current appointment process to the Supreme Court remains opaque. Critically Evaluate. (10 Marks, 150 Words)

12. The implementation of the National Automated Facial Recognition System in India lacks adequate safeguards. Comment. (15 marks, 250 words)
13. Partisan political gains should not be the motivation for a fresh census. A renewed vision for a just and united India, where all divides are reduced must guide the discussion on a caste census. Justify. (15 marks, 250 words)
14. Technology can be a game changer, but it is not a panacea for the ills plaguing courts. Examine. (10 marks, 150 Words)
15. Does the first-past-the-post system lead to political polarisation? Critically evaluate. (15 marks, 250 words)
16. The recent appointment of nine judges to the Supreme Court at one go is a welcome sign of cooperation between the judiciary and the executive. It augurs well for diversity and representation. Comment. (250 words; 15 marks)
17. Illustrate the differences between horizontal and vertical reservation, while making a case for reservations for women and transgender persons in government jobs and education. (250 words; 15 marks)
18. Women's security must not be predicated on restrictions of their rights and freedoms. Comment. (15 marks, 250 words)

Governance

1. A timely, inclusive, and sustainable digital transformation can serve as a panacea for socio-economic divides. Explain. (10 Marks, 150 Words)
2. Denial of access to credible data not only weakens governance, it also denies the citizens the basic right to hold the govt accountable. In the light of the Statement, examine the importance of data in policymaking. (15 Marks, 250 Words)
3. India requires a police force that is responsive and respected and not one that is feared. Discuss the need for reforms and suggest measures. (15 Marks, 250 Words)

Education

1. Should schools be reopened amidst the pandemic? Critically Examine. (10 Marks, 150 Words)
2. Indian students studying overseas and those seeking to go abroad face many COVID-related challenges. Discuss. (10 Marks, 150 Words)

Health

1. Should the vaccine quota for private hospitals be ended? Critically Evaluate. (10 Marks, 150 Words)
2. India should have a COVID booster dose vaccination policy guided by evidence. Discuss. (10 Marks, 150 Words)
3. Strengthening the primary healthcare system will help tackle the burden of non-communicable diseases. Discuss. (10 Marks, 150 Words)

International Relations

1. Examine the evolving American strategy in the Indo-Pacific. How does it impact Indian interests? (250 words; 15 marks)
2. UNCLOS is almost universally lauded for laying down laws and rules whose wide acceptance it is believed has greatly reduced the number, frequency and potential for inter-state conflicts that would otherwise have taken place. Comment. (10 marks, 150 words)
3. India's leadership on maritime security has boosted its standing as a key player in the shared commons. Substantiate. (10 marks, 150 Words)
4. Explain the challenges faced by India since its Independence on the security front. (15 Marks, 250 Words)
5. The signing of the Abraham Accords has helped India remove strategic obstacles and has aided defence cooperation. Analyse. (10 Marks, 150 Words)

6. Periodic attacks on the Chinese workers in Pakistan paints a grim picture for the China-Pakistan Economic Corridor (CPEC) project. Discuss the possible reasons for such attacks. (10 Marks, 150 Words)
7. India does not have the luxury of distance from the ticking bomb in its neighbourhood. Discuss in the context of emerging security dynamics in South Asia. (250 words; 15 marks)
8. There is a sense that Washington's strategic role in the broader Asia region has diminished following its chaotic withdrawal from Afghanistan. Evaluate, how it affects Indian interests and broader stability in Asia? (15 marks, 250 words)

GS Paper 3

Economy

1. Discuss the findings of the third annual round of the Periodic Labour Force Survey (250 words; 15 marks)
2. Closing down the old coal power plants using age as the only criteria can prove to be counter-productive. Analyse. (10 Marks, 150 Words)
3. It is time to formulate a wage employment-based national urban livelihood scheme similar to MGNREGS. Explain the statement with relevant examples. (10 Marks, 150 Words)
4. India's structural reforms for growth must also reflect on equity considerations. Discuss. (10 marks, 150 Words)
5. Critically examine the draft Electricity (Amendment) Bill, 2021. (10 Marks, 150 Words)
6. Explain why the usage of LPG cylinders remains low despite many flagship schemes and programmes. (150 words, 10 marks)
7. Adopting Industry 4.0 technologies would make MSMEs more efficient and competitive. Do you agree? Justify. (15 marks, 250 Words)
8. Discuss the rationale behind the National Monetisation Pipeline (NMP). Also analyse, whether the asset monetisation push needs careful calibration to evade future hazards. (15 marks, 250 words)

Science and Technology

1. What do you understand by 'Genome Sequencing'? Discuss the advantages and limitations of Genome Sequencing. (15 Marks, 250 Words)
2. Of late, billionaire entrepreneurs have ventured into space and nuclear domains through ambitious initiatives. To what extent can these ventures benefit mankind? (250 words; 15 marks)
3. Illustrate with examples how ISRO's failure to launch EOS-3 satellite will have its impact on the upcoming missions. (10 Marks, 150 Words)

Environment and Ecology

1. The IPCC's new findings provide powerful evidence and potential indicators of climate change that are inevitable and irreversible. Discuss the strategies for mitigation of climate change. (15 Marks, 250 Words)
2. Landslips in Himachal Pradesh point to the need for a new development paradigm. Analyse. (10 Marks, 150 Words)
3. Serious implementation of new plastic waste rules can address the problem of waste. Comment. (15 marks, 250 words)
4. Infrastructure development and eco-conservation should go hand-in-hand. Discuss in the context of proposed infrastructure development in the Himalayan region. (15 marks, 250 words)
5. India is setting a global example in meeting its Nationally Determined Contributions. Illustrate. (15 marks, 250 words)

Disaster Management

1. Floods in Bihar have caused extensive damage. Discuss the possible reasons and suggest structural, non-structural and cooperative measures with Nepal to deal with floods. (15 Marks, 150 Words)
2. With a rise in the frequency of devastating cyclones, India needs to look at long-term mitigation measures. Discuss. (150 words, 10 marks)

Essay Topics

(Marks: 125 each; Word limit: 1000 –1200 words)

1. Changes call for innovation, and innovation leads to progress
2. Urbanisation and its hazards
3. The cyber world: its charms and challenges
4. Economic interests and ecological imperatives in the Himalayan Ecosystem

INTERVIEW TRANSCRIPT

Candidate details:

- Name: Suresh Kumar Jagat
- AIR: 556 (CSE 2017)
- Optional Subject: Geography

Personal Details:

- Hometown: Korba, Chhattisgarh
- Education: B.Tech in Mechanical Engineering, National Institute of Technology, Raipur
- Work Experience:
 - » 3.5 years in NTPC Ltd.
 - » 2 years in Central Water Commission (ESE- 2013)
 - » Indian Railways Traffic Service (CSE-2016)
- Hobbies: Watching movies, spending time with children, travelling

Interview Details:

- Chairman of the Interview board: Air Marshal Ajit Bhonsle sir
- Duration: 25 – 30 minutes

Questions asked by the interview board:

Based on DAF:

- Questions based on previous work experience in Central Water Commission (CWC)
 - » What are the challenges faced by the water sector in India?
 - » Data on water availability in India.
- How would your previous work experience help in civil service?
- Questions based on home town/home state
 - » Information about native place
 - » What do you know about custodial death in the jails of Chhattisgarh and what needs to be done?

Polity and Governance:

- Why is linking Aadhar with social sector programmes necessary?
- What are the issues related to Data protection with Aadhar?
- Mechanism of maintaining transparency in India?
- How will you ensure corruption-free society?

Economy:

- Banking fraud, reasons and solution?
- How to confiscate the assets of a person?
- Letter of Understanding vs letter of credit? What are smart cities?
- Tell me something about Financial resolution and deposit insurance bill?
- Demonetisation effect on the economy.
- What are the important Railway sector reforms?
- What is Telgo Train?

International Relations:

- How do you see the international relations of India with neighbouring countries considering the water disputes?