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1. INDIAN SOCIETY & POLITY

1. Virtual Museums

Why in News?

- Ministry of Culture has developed three Virtual Experiential Museums.

Virtual Museums:

- In 2016, the Ministry of Culture was given the task of establishing Virtual Museums in at least 50 locations.
- Subsequently, the Ministry has developed three Virtual Experiential Museums:
 - ✓ Man Mahal at Varanasi
 - ✓ Ajanta Caves at National Museum, Delhi
 - ✓ Humayun Tomb in Delhi
- The last two are under development.
- There is a proposal to develop a National Virtual Experiential Site Museum at Vadnagar, Gujarat.

Man Mahal Virtual Museum:

- Situated at the Man Mahal on the banks of the Ganges near Dashashwamedh ghat, the Museum offers visitors a virtual tour of the ancient city of Varanasi and its cultural and spiritual aspects. It is set up by the National Council of Science Museum (NCSM), under the Union Ministry of Culture. The museum offers visitors the experience of holy ghats, classical music, the weaving of sari, Ram Leela, 3D view of monuments, narrow lanes and betel shops among other heritages of the city. There is a laser light show about the mythology and history of the river Ganga, and guests can also engage in virtual activities such as offering diyas or ringing bells in the river.

Man Mahal:

- Man Mahal is a palace from the 16th century.
- Man Mahal Ghat was built in 1600 by Maharaja Man Singh of Amer along with the palace known for its magnificent building with exquisite ornate window carvings and also for an observatory on the roof.
- The observatory was made by the son of Man Singh (Sawai Jai Singh) in 1710, on the terrace of Man Mahal to calculate astronomical and astrological data.
- Jantar Mantar is the highlight of the observatory which is similar to the Jantar Mantar located in Delhi, Jaipur, Ujjain and Mathura.

2. National Judicial Pay Commission

Why in News?

- The Second National Judicial Pay Commission has filed its report covering the subject of Pay, Pension and Allowances in the Supreme Court.

Second National Judicial Pay Commission:

- The Commission is headed by former Supreme Court judge P V Reddy.
- It was set up on the directions of the apex court in May 2017 during the hearing of the All India Judges Association case.

Key Recommendations:

- **PAY:**
 - ✓ It has recommended the adoption of Pay Matrix which has been drawn up by applying the multiplier of 2.81 to the existing pay, commensurate with the percentage of increase of pay of High Court Judges.
 - ✓ The highest pay which a District Judge (STS) will get, is Rs.2,24,100/-.
- **Pension:**
 - ✓ Pension at 50% of last drawn pay worked out on the basis of proposed revised pay scales is recommended w. e. f. 1-1-2016. The family pension will be 30% of the last drawn pay.
 - ✓ Recommendation has been made to discontinue the New Pension Scheme (NPS) which is being applied to those entering service during or after 2004. The old pension system, which is more beneficial to be revived.
- **Allowances:**
 - ✓ The existing allowances have been suitably increased and certain new features have been added. However, the CCA is proposed to be discontinued.
 - ✓ Certain new allowances viz. children education allowance, home orderly allowance, transport allowance in lieu of pool car facility, has been proposed.

3. Debate around Uniform Civil Code (UCC)

Why in News?

- Recently the Supreme Court described Goa as a “shining example” with a Uniform Civil Code and observed that the founders of the Constitution had hoped and expected a Uniform Civil Code for India but there has been no attempt at framing one.

Highlights:

- Article 44 of the Constitution lays down that the state shall endeavour to secure a Uniform Civil Code for the citizens throughout the territory of India.
- A Uniform Civil Code is one that would provide for one law for the entire country, applicable to all religious communities in their personal matters such as marriage, divorce, inheritance, adoption etc.
- Article 44 is one of the directive principles. These are not justiciable (not enforceable by any court) but the principles laid down therein are fundamental in governance.
- Article 43 mentions “state shall endeavour by suitable legislation” while the phrase “by suitable legislation” is absent in Article 44. All this implies that the duty of the state is greater in other directive principles than in Article 44.

Fundamental Rights or DPSP?

- The Supreme Court held in *Minerva Mills (1980)*: “Indian Constitution is founded on the bed-rock of the balance between Parts III (Fundamental Rights) and IV (Directive Principles).
- To give absolute primacy to one over the other is to disturb the harmony of the Constitution”.
- Article 31C inserted by the 42nd Amendment in 1976, however, lays down that if a law is made to implement any directive principle, it cannot be challenged on the ground of being violative of the fundamental rights under Articles 14 and 19.

Current Civil Code:

- Indian laws do follow a uniform code in most civil matters, Indian Contract Act, Civil Procedure Code, Sale of Goods Act, Transfer of Property Act, Partnership Act, Evidence Act etc.
- States, however, have made hundreds of amendments and therefore in certain matters, there is diversity even under these secular civil laws.
- All Hindus of the country are not governed by one law, nor are all Muslims or all Christians. Not only British legal traditions, even those of the Portuguese and the French remain operative in some parts.
- In the Northeast, there are more than 200 tribes with their own varied customary laws. The Constitution itself protects local customs in Nagaland.
- Similar protections are enjoyed by Meghalaya and Mizoram. Even reformed Hindu law, in spite of codification, protects customary practices.

4. National List of Intangible Cultural Heritage

Why in News?

- Sangeet Natak Akademi (SNA) is preparing the National List of Intangible Cultural Heritage.

National List of Intangible Cultural Heritage:

- SNA is an autonomous organization under the Ministry of Culture is the nodal agency for the Scheme for 'Safeguarding the Intangible Cultural Heritage and Diverse Cultural Traditions of India'.
- As of now, SNA is collaborating with Zonal Cultural Centers of Ministry, collating and preparing a list of ICH elements for National List of Intangible Cultural Heritage.
- List of ICH elements is being compiled and at least 100 elements will be documented by March, 2020 and the aim is to document at least 20 new elements in ICH list every year.
- Along with this establishment of an 'Indian Institute for Culture' is at conceptual stage and a mission called National Culture Mapping portal is being conceptualized for aggregating art forms and artists. It is in pilot phase.

5. Juvenile Justice Act

Why in News?

- A Group of Ministers (GoM) chaired by Home Minister Amit Shah met to discuss proposed amendments to the Juvenile Justice (Care and Protection of Children) (JJ) Act, 2015.

Highlights:

- The 2015 Act addressed two key issues, apprehension, detention, prosecution, penalty or imprisonment, rehabilitation and social re-integration of children in conflict with law and procedures and decisions or orders relating to rehabilitation, adoption, re-integration and restoration of children in need of care and protection.
- The Juvenile Justice (Care and Protection of Children) Act, 2015 has come into force and repeals the Juvenile Justice (Care and Protection of Children) Act, 2000.
- The JJ Act, 2015 provides for strengthened provisions for both children in need of care and protection and children in conflict with law.

Key Provisions Include:

- ✓ change in nomenclature from 'juvenile' to 'child' or 'child in conflict with law', across the Act to remove the negative connotation associated with the word "juvenile";

- ✓ inclusion of several new definitions such as orphaned, abandoned and surrendered children and petty, serious and heinous offences committed by children;
- ✓ clarity in powers, function and responsibilities of Juvenile Justice Board (JJB) and Child Welfare Committee (CWC);
- ✓ clear timelines for inquiry by Juvenile Justice Board (JJB);
- ✓ special provisions for heinous offences committed by children above the age of sixteen year;
- Under Section 15, special provisions have been made to tackle child offenders committing heinous offences in the age group of 16-18 years.
- The Juvenile Justice Board is given the option to transfer cases of heinous offences by such children to a Children's Court (Court of Session) after conducting preliminary assessment.
- To streamline adoption procedures for orphan, abandoned and surrendered children, the existing Central Adoption Resource Authority (CARA) is given the status of a statutory body to enable it to perform its function more effectively. Several rehabilitation and social reintegration measures have been provided for children in conflict with law and those in need of care and protection.
- Several new offences committed against children, which are so far not adequately covered under any other law, are included in the Act. These include: sale and procurement of children for any purpose including illegal adoption, corporal punishment in child care institutions, use of child by militant groups, offences against disabled children and, kidnapping and abduction of children. All child care institutions, whether run by State Government or by voluntary or non-governmental organisations, which are meant, either wholly or partially for housing children, regardless of whether they receive grants from the Government, are to be mandatorily registered under the Act within 6 months from the date of commencement of the Act. Stringent penalty is provided in the law in case of non-compliance.

6. Amendments in Arms Act, 1959

Why in News?

- Amendments in Arms Act, 1959 and Arms Rules, 2016 notified.

Highlights:

- As per the new rules, now International medallists/renowned shooters are allowed to keep additional weapons up to a total of twelve under the exempted category, which earlier was seven.

- Indian shooters have excelled in international competitions. Keeping this in mind, the Ministry of Home Affairs, vide its notification issued under the Arms Act 1959, has made provisions to provide adequate firearms and ammunition to the shooters for their practice.
- The Ministry of Home Affairs vide its notifications dated 12th February 2020 has amended the provisions of the Arms Act, 1959 and the Arms Rules, 2016 to increase the number of firearms that can be kept by shooters and enhanced the quantity of ammunition fixed for their practice for the year. These provisions are expected to greatly facilitate their shooting practice.
- If a shooter is renowned in one event, he/she can keep maximum eight (previously it was four), if a shooter is renowned in two events he/she can keep maximum ten (previously it was seven) and if a shooter is renowned in more than two events, he/she can keep maximum twelve (previously it was seven) firearms under the exempted category. Junior target shooters/aspiring shooters are now allowed to possess two weapons (previously one) of any category in which the person is engaged.
- Apart from the above exemptions, shooters are entitled to possess two firearms as normal citizens under provisions of the Arms Act, 1959.
- Similarly, by amending the provision under Rule 40 of the Arms Rules, 2016 the quantity of ammunition that can be purchased by the shooters during the year for the practice has also been increased considerably.
- Apart from this, the Ministry of Home Affairs has also made other necessary amendments in the Arms Rules, 2016 by amending the Arms Act, 1959 vide the Arms (Amendment) Act, 2019.
- Through these amendments, it has also been clarified that no licence is required for Indian citizens for acquisitions, possession of small arms falling under the category of curio. However, appropriate licence as prescribed would be required for use or to carry or transport such small arms.
- Without the endorsement of such firearms in the prescribed licence of the owner, no ammunition shall be sold for their use.

7. Elections to Rajya Sabha

Why in News?

- The Election Commission has announced that elections to 55 Rajya Sabha seats will be held on March 26, 2020.

Highlights:

- Since Rajya Sabha MPs are elected by state MLAs, political parties with more MLAs are likely to send more MPs to the Upper House.
- Major changes, therefore, are expected in states that have seen a change of power in the last Assembly election. Therefore, the BJP is expected to lose seats in Madhya Pradesh, Chhattisgarh, and Rajasthan where it lost state elections.
- However, it will gain in Uttarakhand and Karnataka, where it came to power in 2017 and 2019 respectively. Overall, the BJP's current strength in Rajya Sabha will likely remain undiminished.
- The Trinamool Congress and YSR Congress Party are expected to make significant gains in the 245-member Upper House after the elections.

Vacancies:

- These seats will be filled by representatives from 17 states.
- The terms of 51 members will end in April, 2020.
- The other four seats are already vacant.
- The strength of Rajya Sabha is 238 currently.
- As of now, the BJP has 82 Members in the Rajya Sabha, and the Congress 46. Of the retiring MPs, 18 are from the BJP, and 11 are from the Congress.

Eligibility:

- A member of the Rajya Sabha must:
 - ✓ Be a citizen of India;
 - ✓ Be at least 30 years old;
 - ✓ Possess such other qualifications as may be prescribed in that behalf by or under any law made by Parliament.

System of election in Rajya Sabha:

- Rajya Sabha also known as Council of States consist of not more than 250 members of whom:
 - ✓ 238 members are elected by MLAs of various States and Union Territories
 - ✓ 12 members nominated by the President.
- Rajya Sabha is a permanent house because one third of members retire every 2 years and same number of members are elected.
- Its members are elected by the Legislative Assembly of States and Union territories by means of Single transferable vote through Proportional representation.

8. Early Human Habitat in Northern India

Why in News?

- An archaeological excavation carried out in the trenches at Dhaba in the upper Son river valley in central India has found evidence of human occupation in this area almost 80,000 years ago.

Highlights:

- The international team of researchers found evidence of the continuous presence of humans in this region between 80,000 years ago and 65,000 years ago.
- The lithic industry (stone tools) from Dhaba strongly resembles stone tool assemblages from the African Middle Stone Age (MSA) and Arabia, and the earliest artefacts from Australia, suggesting that it is likely the product of Homo sapiens as they dispersed eastward out of Africa. This finding is important in the face of competing theories on the first presence of human populations in different regions of the world and on human dispersal from Africa.
- About 74,000 years ago, the Toba volcanic super-eruption, centred around Sumatra, is believed to have caused an almost decade-long spell of cold weather across many parts of the Earth. There is an argument that this induced winter not only led to the cooling of the Earth's surface for almost a thousand years since the eruption, but also destroyed huge populations of hominins.
- The hypothesis is that the 'volcanic winter' caused a bottleneck in the gene pool of humans, because only a few survived who were in Africa at the time. Later, this population is believed to have emerged from Africa and colonised different parts of the world.
- However, the present study rules out this hypothesis as it implies that a population of early humans inhabited northern India even before the date of the eruption (74,000 years ago) and continued through the period of the devastation and until much later.
- The excavation unearthed a large tool industry spanning the period of the Toba super-eruption.
- The large Megalithic tools were dated between approximately 80,000 years and 65,000 years and the small tools were dated at approximately 50,000 years suggesting a continuous inhabiting of this region by humans undisturbed by the super-eruption.
- The fact that we find these before and after the Toba eruption with no apparent change in technology indicates that major eruptions like Toba appear not to have had a catastrophic effect on small hunter-gatherer bands living in India at the time.

2. GOVERNANCE

1. Changes in Abortion Law

Why in News?

- The Union Cabinet has cleared a long-pending change to the Medical Termination of Pregnancy Act, 1971 that raises the legally permissible limit for an abortion to 24 weeks from the current 20 weeks.

Highlights:

- Recently several petitions were received by the Courts seeking permission for aborting pregnancies at a gestational age beyond the present permissible limit on grounds of foetal abnormalities or pregnancies due to sexual violence faced by women. The change also accepts failure of contraception as a valid reason for abortion not just in married but also in unmarried women.
- It increases the maximum permissible gestation age for abortion to 24 weeks, with the proviso that for pregnancies that are between 20-24 weeks opinions will be required from two doctors rather than one.
- This has been specially done keeping in mind “vulnerable women including survivors of rape, victims of incest and other vulnerable women (like differently-abled women, Minors) etc.
- The upper gestation limit will not apply in cases of substantial foetal abnormalities diagnosed by a Medical Board. This clause has been put to keep such cases out of courts.

Significance of changes:

- Despite a sustained government push over years, contraceptive use in India is not very popular. According to a study, 50% of pregnancies in six of the larger Indian states, Assam, Bihar, Gujarat, Madhya Pradesh, Tamil Nadu and Uttar Pradesh, are unintended.
- Estimation of unintended pregnancies is important because many of them result in abortions and the availability of cheap and safe abortion services is one of the indicators of a robust health system.

2. Sophisticated Analytical & Technical Help Institutes (SATHI)

Why in News?

- DST launches SATHI Initiative for building shared, professionally managed strong S&T infrastructure.

SATHI:

- To address the need for building shared, professionally managed and strong Science and Technology infrastructure in the country which is readily accessible to academia, start-ups, manufacturing, industry and R&D labs, the Department of Science & Technology (DST) has launched a unique scheme called “Sophisticated Analytical & Technical Help Institutes (SATHI)”. These Centres are expected to house major analytical instruments to provide common services of high-end analytical testing, thus avoiding duplication and reducing dependency on foreign sources.
- These would be operated with a transparent, open access policy. DST has already set up three such centres in the country, one each at IIT Kharagpur, IIT Delhi and Banaras Hindu University (BHU).
- It is planned to set up five SATHI Centres every year for the next four years. SATHI will address the problems of accessibility, maintenance, redundancy and duplication of expensive equipment in Indian institutions, while reaching out to the less endowed organizations in need, e.g., industry, MSMEs, startups and State Universities.
- This will also foster a strong culture of collaboration between institutions and across disciplines to take advantage of developments, innovations and expertise in diverse areas.

3. YUVIKA Programme

Why in News?

- The Indian Space Research Organisation (ISRO) has launched the "Young Scientist Programme 2020" for school children, named YUva Vigyani Karyakram (YUVIKA).

Highlights:

- The YUVIKA programme was started in 2019 to increase the interest of students in space activities. It was launched by ISRO in tune with the Central government’s vision of “Jai Vigyan, Jai Anusandhan”. Through the programme, the students can meet scientists at the different ISRO centres, visit their labs and also participate in lectures and practical classes.
- Three students from each State and Union Territory will be selected and five additional seats will be reserved for Overseas Citizen of India (OCI) students.
- The YUVIKA programme will be held for two weeks at any one of the ISRO/DOS centres located at Ahmedabad, Bangalore, Shillong and Thiruvananthapuram. It is expected that programmes like YUVIKA might produce good number of scientist in coming years and would lead to national intergartion and nation building.

- The criteria for selection includes:
 - ✓ Performance in the Class 8 examination Prizes in school events like elocution, debate, essay writing
 - ✓ Winning in District/State/National/International level sports activities
 - ✓ Being Scouts and Guides/NCC/NSS member Studying in a Rural School.

4. Soil Health Card Scheme

Why in News?

- In the second phase of the scheme's implementation, 11.69 crore Soil Health Cards were distributed to farmers in two years.

Soil Health Card Scheme:

- The scheme was launched in 2014 with a view to addressing the decline of soil nutrients.
- The scheme has helped farmers to understand the soil health parameters and improve its productivity by judicious application of soil nutrients.
- Under this scheme, farmers can know the major and minor nutrients available in their soils which will ensure judicious use of fertiliser application and reduce the cost of inputs and improve soil fertility.
- A Soil Health Card is used to assess the current status of soil health and, when used over time, to determine changes in soil health that are affected by land management.
- It displays soil health indicators and associated descriptive terms. The indicators are typically based on farmers' practical experience and knowledge of local natural resources.
- The card lists soil health indicators that can be assessed without the aid of technical or laboratory equipment.
- A study conducted by the National Productivity Council (NPC) says the application of Soil Health Card recommendations has led to a decline of 8-10% in the use of chemical fertilizers and also raised productivity by 5-6%.
- A pilot project "Development of Model Villages" is being implemented under which the sampling and testing of cultivable soil are being encouraged in partnership with the farmers.
- Under the project, a Model Village has been selected for aggregation of soil samples and analysis of each agricultural holding.
- The scheme provides for the analysis of soil composition by the State Governments once in every two years so that remedial steps can be taken to improve soil nutrients.

- Farmers can track their soil samples and also obtain their Soil Health Card report.
- The scheme also aids in creating employment for rural youth.
- Under the scheme, village youth and farmers up to 40 years of age are eligible to set up Soil Health Laboratories and undertake testing.
- A laboratory costs up to Rs Five Lakhs, 75% of which can be funded by the Central and State Governments.
- The same provisions apply to Self Help Groups, Farmers' Cooperative Societies, Farmers Groups and Agricultural Producing Organisations.

5. Surrogacy bill 2019

Why in News?

- A surrogate mother need not be a “close relative”, was recommended by the Rajya Sabha Select Committee on Surrogacy (Regulation) Bill, 2019, which also advocated omission of the five-year time limit before seeking surrogacy.
- This is among the 15 major changes suggested by the 23-member committee that presented its report in the Rajya Sabha.

Highlights:

- The other major changes recommended by the Committee include – allowing single women (widow or a divorcee and Persons of Indian Origin) to avail of surrogacy, and increasing insurance cover for the surrogate mother from the 16 months proposed in the Bill to 36 months.
- The committee stated that the requirement of surrogate mother to be a “close relative” potentially restricts the availability of surrogate mothers, affecting genuinely needy persons.
- The other major recommendation concerns deleting the definition of “infertility” as “the inability to conceive after five years of unprotected intercourse” on grounds that it was too long a period for a couple to wait for a child.
- In order to protect the interests of the child born through surrogacy, the Committee recommended that the order regarding the parentage and custody of the child, issued by a Magistrate, shall be the birth affidavit for the surrogate child.
- The Select Committee said that the Assisted Reproductive Technologies (Regulation) Bill (ART), which is awaiting Cabinet approval, may be taken up before the Surrogacy (Regulation) Bill.

- The ART Bill primarily deals with technical, scientific and medical aspects, including the storage of embryos, gametes, oocytes, etc. as contained in the Surrogacy Bill.

Provisions of Surrogacy Bill 2019:

- The Bill prohibits commercial surrogacy, but allows altruistic surrogacy. Altruistic surrogacy involves no monetary compensation to the surrogate mother other than the medical expenses and insurance coverage during the pregnancy.
- Surrogacy is permitted when it is: (i) for intending couples who suffer from proven infertility; (ii) altruistic; (iii) not for commercial purposes; (iv) not for producing children for sale, prostitution or other forms of exploitation; and (v) for any condition or disease specified through regulations.
- The intending couple should have a ‘certificate of essentiality’ and a ‘certificate of eligibility’ issued by the appropriate authority.
- The certificate of eligibility to the intending couple is issued upon fulfilment of the following conditions: (i) the couple being Indian citizens and married for at least five years; (ii) between 23 to 50 years old (wife) and 26 to 55 years old (husband); (iii) they do not have any surviving child (biological, adopted or surrogate); this would not include a child who is mentally or physically challenged or suffers from life threatening disorder or fatal illness; and (iv) other conditions that may be specified by regulations.
- The central and state governments shall appoint one or more appropriate authorities within 90 days of the Bill becoming an Act. The functions of the appropriate authority include; (i) granting, suspending or cancelling registration of surrogacy clinics; (ii) enforcing standards for surrogacy clinics; (iii) investigating and taking action against breach of the provisions of the Bill; (iv) recommending modifications to the rules and regulations. The central and the state governments shall constitute the National Surrogacy Board (NSB) and the State Surrogacy Boards (SSB), respectively.
- Functions of the NSB include, (i) advising the central government on policy matters relating to surrogacy; (ii) laying down the code of conduct of surrogacy clinics; and (iii) supervising the functioning of SSBs.
- A child born out of a surrogacy procedure will be deemed to be the biological child of the intending couple. An abortion of the surrogate child requires the written consent of the surrogate mother and the authorisation of the appropriate authority. Further, the surrogate mother will have an option to withdraw from surrogacy before the embryo is implanted in her womb.

- The offences under the Bill include: (i) undertaking or advertising commercial surrogacy; (ii) exploiting the surrogate mother; (iii) abandoning, exploiting or disowning a surrogate child; and (iv) selling or importing human embryo or gametes for surrogacy.
- The penalty for such offences is imprisonment up to 10 years and a fine up to 10 lakh rupees. The Bill specifies a range of offences and penalties for other contraventions of the provisions of the bill.

6. Pradhan Mantri Shram Yogi Maan-dhan Yojana

Why in News?

- New pension schemes for unorganised sector.

Highlights:

- The Government has introduced two voluntary and contributory Pension Schemes:
 - ✓ Pradhan Mantri Shram Yogi Maan-dhan Yojna (PM-SYM): **A pension scheme for the Unorganised Workers**
 - ✓ National Pension Scheme for the Traders and Self Employed Persons (NPS-Traders) **under Section 3(1) of the Unorganised Workers Social Security Act, 2008 to provide old age protection to them**
- The schemes envisage for providing a minimum assured monthly pension of Rs. 3000/- after attaining the age of 60 years.
 - ✓ If the subscriber dies, the spouse of the beneficiary shall be entitled to 50% of the pension as a family pension.
 - ✓ Family pension is applicable only to the spouse.
 - ✓ The monthly contribution ranges from Rs.55 to Rs.200/- depending upon the entry age of the beneficiary.

NPS-Traders Scheme:

- This scheme is meant for old age protection and social security of Vyapaaris (retail traders/shopkeepers and self-employed persons) whose annual turnover is not exceeding Rs.1.5 crores.
- These retail traders/petty shopkeepers and self-employed persons are mostly working as shop owners, retail traders, rice mill owners, oil mill owners, workshop owners, commission agents, brokers of real estate, owners of small hotels, restaurants and other Vyapaaris.

- The entry age for the scheme is 18-40 years and the Vyapaari should not be a member of ESIC/EPFO/PM-SYM or an income taxpayer.
- The schemes are being implemented through Life Insurance Corporation (LIC) of India and Common Service Centres. LIC is the Fund Manager and responsible for pension pay-out.

7. Indian Institutes of Information Technology Laws (Amendment) Bill, 2020

Why in News?

- Cabinet approves the Indian Institutes of Information Technology Laws (Amendment) Bill, 2020. IIITs are envisaged to promote higher education and research in the field of Information Technology.

Highlights:

- The Bill will declare the remaining 5 IIITs-PPP along with the existing 15 Indian Institutes of Information Technology in Public Private Partnership mode as 'Institutions of National Importance' with powers to award degrees.
- This will entitle them to use the nomenclature of Bachelor of Technology (B.Tech) or Master of Technology (M.Tech) or Ph.D. degree as issued by a University or Institution of National Importance. It will also enable the Institutes to attract enough students required to develop a strong research base in the country in the field of information technology.
- The bill was introduced to grant statutory status to five Indian Institutes of Information Technology in Public Private Partnership mode at Surat, Bhopal, Bhagalpur, Agartala and Raichur and declare them as Institutions of National Importance along with already existing 15 Indian Institutes of Information Technology under the Indian Institutes of Information Technology (Public-Private Partnership) Act, 2017.
- These five IIITs are already functioning as Societies and they will now be covered under the IIIT (PPP) Act, 2017, similar to the other 15 IIITs established under the scheme in PPP mode.

8. Rajya Sabha House Panel suggests steps to Curb Child Pornography

Why in News?

- A parliamentary panel has recommended a code of conduct for Internet service providers (ISPs) and strengthening the National Commission for Protection of Child Rights to curb child pornography.

Highlights:

- The report, prepared by an ad hoc committee set up by the Rajya Sabha and led by Congress MP Jairam Ramesh, was submitted to the Chairman of the House.
- It recommends a multi-pronged strategy detailing technological, institutional, social and educational as well as State-level measures.
- Among its key recommendations is a code of conduct or a set of guidelines for ensuring child safety online.
- It puts a greater onus on ISPs to identify and remove child sexual abuse material (CSAM) as well as report such content and those trying to access them to the authorities under the national cybercrime portal.
- It has also called for strengthening the National Commission for Protection of Child Rights (NCPCR) so that it can serve as the nodal body for curbing child pornography.
- The capabilities required in the NCPCR should include technology, cyberpolicing and prosecution along with an inter-ministerial task force, the panel has proposed.
- The committee has delved into great detail in using technology to curb circulation of child porn such as breaking end-to-end encryption to trace its distributors of child pornography, mandatory applications to monitor children's access to pornographic content, employing photo DNA to target profile pictures of groups with CSAM.

Drawbacks:

- The suggestion to break encryption may also just lead to traffic moving to different platforms. There is also a need to develop a victim-centric strategy instead of just focusing on prosecution.

9. National Means-cum-Merit Scholarship Scheme (NMMSS)

Why in News?

- The Union Minister for Human Resource Development informs in the Rajya Sabha that the NMMSS has helped to reduce the drop-out rate at the secondary and senior secondary classes.

NMMSS:

- The Central Sector Scheme 'National Means-cum-Merit Scholarship Scheme' (NMMSS) is being implemented since 2008 with the objective to award scholarships to meritorious students of economically weaker sections to arrest their drop out at class VIII and encourage them to continue studies at the secondary stage.

- Under the Scheme, one lakh fresh scholarships @ of Rs.12000/- per annum per student are awarded to selected students of class IX every year and their continuation/renewal in classes X to XII for study in a State Government, Government-aided and Local body schools.
- There is a separate quota of scholarships for each State/UT.
- Students whose parental income from all sources is not more than Rs. 1,50,000/- per annum are eligible to avail of the scholarships.
- The selection of students for the award of scholarships under the scheme is made through an examination conducted by the States/UTs Governments. For appearing in the test, students should have obtained a minimum of 55% marks in the class VIII exam.
- The scheme is boarded on the National Scholarship Portal (NSP) since 2015-16.
 - ✓ The NSP has been developed by the Department of Electronics and Information Technology (DeitY) for streamlining and fast-tracking the release of Scholarships across Ministries/Departments with efficiency, transparency and reliability.
 - ✓ The eligible students from different States/UTs register themselves on NSP.
- The Scheme was evaluated by the National Institute of Planning and Administration (NIEPA).
- As per the evaluation study report, the scheme helped poor families in sending their meritorious children for secondary and senior secondary education and has therefore recommended increasing the scholarship amount.

10. Quality Council of India (QCI)

Quality Council of India:

- The Quality Council of India (QCI) works for promotion of Quality Standards across various economic and social sectors such as manufacturing, education, health and environment.
- The QCI has been established as a National body for Accreditation on recommendation of Expert Mission of EU after consultation in Inter-Ministerial Task Force, Committee of Secretaries and Group of Ministers through a Cabinet decision in 1996.
- Accordingly, the QCI was set up through a PPP model as an independent autonomous organization with the support of Government of India and the Indian Industry represented by the three premier industry associations

- ✓ Associated Chambers of Commerce and Industry of India (ASSOCHAM)
- ✓ Confederation of Indian Industry (CII)
- ✓ Federation of Indian Chambers of Commerce and Industry (FICCI)
- The QCI is the umbrella organisation of five boards:
 - ✓ NABL – National Accreditation Board for Testing and Calibration Laboratories;
 - ✓ NABH- National Accreditation Board for Hospitals & Healthcare;
 - ✓ NABET- National Accreditation Board for Education and Training;
 - ✓ NABCB- National Accreditation Board for Certification Bodies; and
 - ✓ NBQP- National Board for Quality Promotion.

Functions:

- Besides carrying out accreditation, certification, empanelment and third-party assessment activities through its Boards, QCI is also involved in project initiation, planning & development and its successful execution for various ministries, Government departments and State Governments.
- It carries out such activities through its five Boards and three divisions under Special Projects namely:
 - [ZED] – ZERO DEFECT ZERO EFFECT,
 - [PADD] – Project Analysis and Documentation Division; and
 - [PPID] – Project Planning & Implementation Division.

National Accreditation Board for Certification Bodies (NABCB):

- National Accreditation Board for Certification Bodies provides accreditation to Certification and Inspection Bodies based on assessment of their competence as per the Board's criteria and in accordance with International Standards and Guidelines.
- NABCB is internationally recognized and represents the interests of the Indian industry at international forums through membership and active participation.
- NABCB is a member of International Accreditation Forum (IAF) & Pacific Accreditation Cooperation (PAC) as well as signatory to their Multilateral Mutual Recognition Arrangements (MLAs / MRAs) for Quality Management Systems, Environmental Management Systems, Food Safety Management Systems, Product Certification, Global G.A.P. and Information Security Management Systems.
- NABCB is also a signatory to PAC MLA for Energy Management Systems.
- NABCB is a Full Member of International Laboratory Accreditation Cooperation (ILAC) & Asia Pacific Laboratory Accreditation Cooperation (APLAC) and a signatory to their MRAs

for Inspection. NABCB accreditations are internationally equivalent and facilitates global acceptance of certifications / inspections by its accredited bodies.

National Accreditation Board for Hospitals & Healthcare Providers (NABH):

- National Accreditation Board for Hospitals & Healthcare Providers (NABH) operates accreditation programme for healthcare organisations.
- The board is structured to cater to much desired needs of the consumers and to set benchmarks for progress of healthcare organizations.
- The Board while being supported by all stakeholders including industry, consumers, government, operates within the overall internationally accepted benchmarks of quality. NABH is an Institutional Member of the International Society for Quality in Health Care (ISQua).
- It is also a member as well as on the Board of Asian Society for Quality in Healthcare (ASQua).

National Accreditation Board for Education and Training (NABET):

- National Accreditation Board for Education and Training (NABET) has set up an established mechanism for overall quality assurance in sectors such as services, education-formal and non-formal, industry and environment.
- For focused strategic direction it performs its activities through five distinct verticals namely; Formal Education Excellence Division (FEED), Skills Training, Skill Certification, Environment & MSME.
- The activities of the Board are accreditation of Certification Bodies that are working in the domain of personnel certification, certification of training providers and educational organizations. NABET works with many Central Government ministries, state governments and sector specific associations/chambers to help them create structures and standards in their services, training institutions and other regulatory processes through third party accreditation mechanism.
- With the aim to add creative value to the services, education and training-learning ecosystem NABET works as per International standards and protocols.
- NABET is a member of International Accreditation Forum (IAF) & Pacific Accreditation Cooperation (PAC).

National Accreditation Board for Testing and Calibration of Laboratories (NABL):

- National Accreditation Board for Testing and Calibration of Laboratories (NABL) grants Accreditation (Recognition) of technical competence of a testing, calibration, medical

laboratory, Proficiency Testing Provider (PTP) and Reference Material Producer (RMP) for a specific scope following international standards.

- NABL has Mutual Recognition Arrangements (MRA) with Asia Pacific Laboratory Accreditation Cooperation (APLAC) and is also signatory to International Laboratory Accreditation Cooperation (ILAC).

11. National Deworming Day (NDD)

Why in News?

- The Ministry of Health & Family Welfare conducts the tenth round of the National Deworming Day (NDD).

National Deworming Day (NDD):

- As part of this campaign, children and adolescents aged 1-19 years are being administered Albendazole (400 mg) across government, government-aided schools, anganwadis, private schools and other educational institutions.
- The NDD is implemented with an objective to reduce the prevalence of Soil Transmitted Helminths (STH), commonly called the parasitic intestinal worms, among all children and adolescents.
- Infections with the main STH – roundworm, whipworm and hookworms – contribute to 50.1 lakh disability adjusted life-years (DALYs) worldwide (WHO, 2010). One DALY can be thought of as one lost “healthy” year from a life.
- In India, over 22 crore children under 14 years are at risk of STH infections (WHO, 2017).
- Launched in 2015, the NDD is the largest public health program implemented on a single day reaching crores of children and adolescents through two NDD rounds every year.
- NDD will be observed in 34 States/UTs over weeks and is expected to reach an estimated 30 crore of the target population.
- Implemented in collaboration with the Ministry of Women and Child Development and Ministry of Human Resource Development, NDD is a key intervention of Anemia Mukh Bharat.
- In preparation for the NDD rounds, Anganwadi workers and teachers are trained on community mobilization and administration of deworming tablet.
- Deworming through Albendazole is an evidence-based, globally-accepted, effective solution used to control worm infections in all children.

12. Ease of Living Index and Municipal Performance Index 2019

Why in News?

- To help assess the progress made in cities through various initiatives and empower them to use evidence to plan, implement & monitor their performance, two Assessment Frameworks, viz. Ease of Living Index (EoLI) and Municipal Performance Index (MPI) 2019 have been launched by the Ministry of Housing & Urban Affairs.

Ease of Living Index and Municipal Performance Index:

- Both these indices are designed to assess quality of life of citizens in 100 Smart Cities and 14 other Million Plus Cities.

Municipal Performance Index:

- With the Municipal Performance Index 2019, the Ministry has sought to assess the performance of municipalities based on five enablers namely Service, Finance, Planning, Technology and Governance which have been further divided into 20 sectors which will be evaluated across 100 indicators. This will help Municipalities in better planning and management, filling the gaps in city administration, and improving the liveability of cities for its citizens.

Ease of Living Index:

- Ease of Living Index is aimed at providing a holistic view of Indian cities – beginning from the services provided by local bodies, the effectiveness of the administration, the outcomes generated through these services in terms of the liveability within cities and, finally, the citizen perception of these outcomes. The key objectives of the Ease of Living Index are four-folds, viz.
 - ✓ Generate information to guide evidence-based policy making
 - ✓ Catalyse action to achieve broader developmental outcomes including the SDG’
 - ✓ Assess and compare the outcomes achieved from various urban policies and schemes
 - ✓ Obtain the perception of citizens about their view of the services provided by the city administration. EoLI 2019 will facilitate the assessment of ease of living of citizens across three pillars: Quality of Life, Economic Ability and Sustainability which are further divided into 14 categories across 50 indicators.

Citizen Perception Survey:

- For the first time, as part of the Ease of Living Index Assessment, a Citizen Perception Survey is being conducted on behalf of the Ministry (which carries 30% of the marks of the Ease of Living Index).

- This is a very important component of the assessment exercise as it will help in directly capturing perception of citizens with respect to quality of life in their cities. This survey, which is being administered both online and offline, has commenced from 1st February 2020 and will continue till 29th February 2020.
- The offline version involving face-to-face interviews will commence on the 1st of February and will run parallel to the on-line versions. The same is being promoted through bulk SMS push as well as extensive coverage in social media.

13. National Literacy Mission

Why in News?

- Adult Education is a Concurrent Subject with both Central and State Governments being required to contribute to its promotion and strengthening.
- At the national level, National Literacy Mission Authority (NLMA), an autonomous wing of MHRD is the nodal agency for overall planning and management and funding of Adult Education Programmes and institutions. Its inter – ministerial General Council and Executive Committee are the two policy and executive bodies.

Centrally Sponsored Schemes:

- Presently, the provision of adult education is through the Saakshar Bharat Programme (SBP) which is a centrally sponsored scheme.
- The National Literacy Mission Authority (NLMA), is the Nodal Agency at the National level. The Joint Secretary (Adult Education) is the ex – officio Director General of NLMA.
- It was set up in 1988 with the approval of the Cabinet as an independent and autonomous wing of the Ministry of HRD (the then Department of Education). The Cabinet vested NLMA with full executive and financial powers in the sphere of work.
- **National Literacy Mission Authority is mandated with**
 - ✓ Policy and planning;
 - ✓ Developmental and promotional activities;
 - ✓ Operational functions including assistance to voluntary agencies and other NGOs,
 - ✓ Technology demonstration
 - ✓ Leadership training
 - ✓ Resource development including media and materials
 - ✓ Research and development
 - ✓ Monitoring and evaluation etc.

The Council of NLMA:

- Is the apex body of NLMA, headed by Minister of Human Resource Development and consists of, among others, Ministers of Panchayati Raj, Rural Development, Minority Affairs, Information and Broadcasting, Health and Family Welfare, Youth Affairs and Sports, Social Justice and Empowerment, Women and Child Development, senior level political leaders of the main political parties, three Members of Parliament, Education Ministers of six States etc.

Executive Committee:

- The Executive Committee is responsible to carry out all the functions of the Authority in accordance with the policy and guidelines laid down by the Council.
- It strives for proper implementation of policies and incorporation of latest developments in the field of adult education.

Major campaigns under the National Literacy Mission:

- **TOTAL LITERACY CAMPAIGNS (TLC):** This model is the dominant strategy for the eradication of adult illiteracy in India. TLC campaigns are area-specific, time-bound, volunteer-based, cost-effective and outcome-oriented. The campaigns are implemented through district-level literacy committees which are registered under the Societies Registration Act as independent and autonomous bodies to provide a unified umbrella under which a number of individuals and organisations work together.
- **POST LITERACY PROGRAMME (PLP):** Post-literacy programmes attempt to give interested learners an opportunity to harness and develop their learning potentials after completion of a course in basic literacy. Post literacy programmes are open to neo-literates in the age group of 9-35 who have completed the basic literacy course under the total literacy campaigns, dropouts from primary schools and pass outs from Non formal Education (NFE) programmes.
- **CONTINUING EDUCATION PROGRAMME (CEP):** After the impingement of literacy and adult education programmes another challenge that came before the National Literacy Mission was to create a Continuing Education System and maintain a channelled continuous and life-long learning process. Thus, the scheme of Continuing Education was taken up. The Continuing Education Scheme is multi-faceted and is postulated on the principles of treating basic literacy, post literacy and later continuing education. Above all the scheme aims at addressing the socio-economic situations of the community to provide infrastructure for larger development initiatives.

14. School Health Ambassador Initiative

Why in News?

- Union ministers release curriculum for School Health Ambassador Initiative under Ayushman Bharat.

School Health Promotion Activities	<ul style="list-style-type: none"> •Age appropriate incremental learning for promotion of healthy behavior and prevention of various diseases •Delivered through school teachers/Health and Wellness Ambassadors trained in each school
Health Screening	<ul style="list-style-type: none"> •The screening of children for 30 identified health conditions for early detection, free treatment and management through dedicated RBSK mobile health teams. List enclosed as Annexure I
Provision of Services	<ul style="list-style-type: none"> •Provision of IFA and Albendazole tablets by teachers through WIFS and NDD programme respectively. •Provision of sanitary napkins •Age appropriate vaccination
Electronic Health Records	<ul style="list-style-type: none"> •Electronic health record for each child
Imparting skills of emergency care	<ul style="list-style-type: none"> •Training of teachers on basic first aid

Highlights:

- Under this initiative, two teachers in every school will be made health and wellness ambassadors to spread awareness about health issues.
- These ambassadors will be supported by class monitors as Health and Wellness Messengers.
- Initially, the programme, under the Ayushman Bharat Mission, will be started in 200 districts. The first phase of implementation will be in all public upper primary, secondary, and senior secondary schools of aspirational districts.
- In this new initiative, health promotion and prevention activities programmes have been added in addition to on-going health screening programs through Rashtriya Bal Swasthya Karyakram (RBSK) teams and provision of services (IFA, Albendazole and sanitary napkins).
- The ambassadors are appointed under the aegis of the School Health Programme of the Central Government.

Objectives of the School Health Programme:

- To provide age-appropriate information about health and nutrition to the children in schools.

- To promote healthy behaviours among the children that they will inculcate for life.
- To detect and treat diseases early in children and adolescents including identification of malnourished and anaemic children with appropriate referrals to PHCs and hospitals.
- To promote the use of safe drinking water in schools.
- To promote safe menstrual hygiene practices by girls.
- To promote yoga and meditation through Health & Wellness Ambassadors.
- To encourage research on health, wellness and nutrition for children.

15. Two Child Norms Debate

Why in News?

- Shiv Sena Rajya Sabha member Anil Desai introduced a Private Member's Bill in the Rajya Sabha.

Highlights:

- The Bill proposes incentives in taxation, education and employment for people who limit their family size to two children.
- The Bill has sought the incorporation of a new provision, Article 47A in Part IV of the Constitution, to withdraw all concessions from people who fail to adhere to the "small-family" norm. The Bill aims to amend the Constitution in order to incentivise limiting families to two children by offering tax concessions, priority in social benefit schemes and school admissions, among other things.
- The Bill proposes the insertion of Article 47A after Article 47 of the Constitution.
- Article 47A says the following: The State shall promote small family norms by offering incentives in taxes, employment, education etc. to its people who keep their family limited to two children and shall withdraw every concession from and deprive such incentives to those not adhering to small family norm, to keep the growing population under control.

Need for Two Child Norms:

- India's population rate has overrun the ability of the environment to cater to. This has caused stress on the limited resources of the country. The higher population has not resulted in higher productivity rate in terms of creation of wealth instead the per capita wealth has depreciated.
- Women are forced to undergo multiple pregnancies over a short period of time. This has created adverse effect on their health leading to their death in some cases.

Drawbacks of Two Child Norms:

- It will increase the cases of mass sterilization especially by poor women belonging to backward area. This may result in deaths of women due to improper procedures.
- The replacement rate of the old population will decrease significantly due to which the number of working age population will reduce drastically.

16. Election Commission Working on Remote Voting System

Why in News?

- The model of an Aadhaar-linked electronic voting system that would enable electors to cast their votes from any part of the country, irrespective of where they are registered to vote or even abroad, is being prepared for the Election Commission of India by the Indian Institute of Technology-Madras (IIT-M).

Highlights:

- If the project is given the go-ahead by the ECI, changes to the election laws would be required for which the Law Ministry needs to be approached.
- To start with, the proposal would be to enable voting at designated centres in different cities, but the second phase of the project, if approved, could be used to enable overseas electors to cast their votes.
- The system would allow, for example, a Delhi-registered elector who happens to be in Hyderabad to cast his or her vote in elections in the Capital electronically.
- With the proposed linking of the Aadhaar biometrics with voter IDs at an advanced stage, the two-way electronic voting system would be possible only when the linking is complete. The ECI had used a one-way electronic system for service electors for the first time in the 2019 Lok Sabha elections.
- The postal ballots were transmitted electronically to the service electors, which led to an increased turnout of 60.14%.

Election Commission of India:

- The Election Commission of India is an autonomous constitutional authority responsible for administering election processes in India at national, state and district level.
- The body administers elections to the Lok Sabha, Rajya Sabha, state Legislative Assemblies, state legislative Councils, and the offices of the President and Vice President of the country.

- The Election Commission operates under the authority of Constitution per Article 324, and subsequently enacted Representation of the People Act.

Functions:

- The commission has the power to designate political party insignia and is prohibited from allowing the same insignia by two different parties regardless of differing locations. It set limits on poll expenses.
- The commission is responsible for maintenance of the electoral rolls and establishing the schedules of elections.

Removal:

- The Chief Election Commissioner of India can be removed from office as can be a judge of the Supreme Court of India: a two-thirds majority resolution passed by the Parliament of India (Lok Sabha and Rajya Sabha) outlining the grounds of misbehaviour or incapacity. Other Election Commissioners can be removed by the President of India on the advice of the Chief Election Commissioner.

17. Central Administrative Tribunal (CAT)

Why in News?

- All India Conference of Central Administrative Tribunal 2020 held in New Delhi.

Central Administrative Tribunal:

- The Central Administrative Tribunal had been established under Article 323 A of the Constitution for the adjudication of disputes and complaints with respect to recruitment and conditions of service of persons appointed to public services and posts in connection with the affairs of the Union or other authorities under the control of the Government
- The CAT has been established as a specialist body comprising of Administrative Members and Judicial Members who by virtue of their specialized knowledge are better equipped to dispense speedy and effective justice.
- CAT is distinguishable from the ordinary courts with regard to its jurisdiction and procedure.
- It exercises jurisdiction only in relation to the service matters of the parties covered by the Act.
- It is also free from the shackles of many of the technicalities of the ordinary Courts. The procedural simplicity of the Act can be appreciated from the fact that an aggrieved government employee can also appear personally before the Tribunal.

- An Original Application can be filed by remitting a nominal fee of Rs. 50/- before the Tribunal. A provision has also been made in the Rules that where the Tribunal is satisfied that an applicant is unable to pay the prescribed fee on the ground of indigence, it may exempt such an applicant from the payment of fee.
- The Tribunal is guided by the principles of natural justice in deciding cases and is not bound by the procedure, prescribed by the Civil Procedure Code.
- It is empowered to frame its own rules of procedure and practice.
- The Tribunal has been conferred with the power to exercise the same jurisdiction and authority in respect of contempt of itself as a High Court.
- The Tribunal also has 17 Benches.

18. National Groundwater Management Improvement Programme

Why in News?

- The Government of India and the World Bank have signed a \$450 million loan agreement to support the national programme to arrest the country's depleting groundwater levels and strengthen groundwater institutions.

Highlights:

- The World Bank-supported programme will be implemented in the states of Gujarat, Maharashtra, Haryana, Karnataka, Rajasthan, Madhya Pradesh, and Uttar Pradesh and cover 78 districts.
- These states span both the hard rock aquifers of peninsular India and the alluvial aquifers of the Indo-Gangetic plains.
- They were selected based on several criteria, including degree of groundwater exploitation and degradation, established legal and regulatory instruments, institutional readiness, and experience in implementing initiatives related to groundwater management.
- This programme will contribute to rural livelihoods and in the context of climatic shifts, build resilience of the rural economy.

Objectives:

- The programme will, among others, enhance the recharge of aquifers and introduce water conservation practices; promote activities related to water harvesting, water management, and crop alignment; create an institutional structure for sustainable groundwater management; and equip communities and stakeholders to sustainably manage groundwater.

Particulars:

- The programme will introduce a bottom-up planning process for community-driven development of water budgets and Water Security Plans (WSPs).
- Water budgets will assess surface and groundwater conditions (both quantity and quality) and identify current and future needs.
- The WSP, on the other hand, will focus on improving groundwater quantity and incentivize selected states to implement the actions proposed.
- Such community-led management measures will make users aware of consumption patterns and pave the way for economic measures that reduce groundwater consumption.
- Crop management and diversification will be the other focus areas.

19. Institute for Defence Studies and Analyses

Why in News?

- Institute for Defence Studies and Analyses has been renamed as Manohar Parrikar Institute for Defence Studies and Analyses.
- Manohar Parikkar was India's Defence Minister from November 2014 to March 2017.

Institute for Defence Studies and Analyses (IDSA):

- An autonomous body under the Ministry of Defence, IDSA was established as a registered society in New Delhi in 1965, dedicated to objective research and policy-relevant studies on all aspects of defence and security.
- Its aim is to promote national and international security through the generation and dissemination of knowledge on defence and security-related issues.
- To achieve its goals, the institute undertakes scholarly research, policy-oriented research, dissemination of research findings, training and capacity building and public education.
- The IDSA has a well-qualified multi-disciplinary research faculty drawn from academia, defence forces, etc., representing a diversity of views.
- Research at the Institute is driven by a comprehensive agenda and the need to provide impartial analyses and policy recommendations.
- Since its inception, IDSA has served as a forum to debate important aspects of national and international security.
- The institute conducts several national and international conferences every year and regularly holds round tables and workshops on important developments.

20. Assisted Reproductive Technology Regulation Bill 2020

Why in News?

- Cabinet approved the Assisted Reproductive Technology Regulation Bill 2020.

Highlights:

- The bill makes provisions for the safe and ethical practice of assisted reproductive technology services in the country.
- Through the bill, the National Board, the State Boards, the National Registry and the State Registration Authorities respectively will regulate and supervise assisted reproductive technology (ART) clinics and assisted reproductive technology banks.
- The Bill also provides for a National Registry and Registration Authority to maintain a central database and assist the National Board in its functioning.
- The Bill proposes for stringent punishment for those practising sex selections, sale of human embryos or gametes, running agencies/rackets/organisations for such unlawful practices.

Background:

- India has one of the highest growths in the ART centres and the number of ART cycles performed every year.
- Assisted Reproductive Technology (ART), including In-Vitro Fertilization (IVF), has given hope to a multitude of persons suffering from infertility, but it also introduced a plethora of legal, ethical and social issues. India has become one of the major centres of this global fertility industry, with reproductive medical tourism becoming a significant activity.
- Clinics in India offer nearly all the ART services—gamete donation, intrauterine insemination (IUI), IVF, ICSI, PGD and gestational surrogacy.
- However, in spite of so much activity in India, there is yet no standardisation of protocols and reporting is still very inadequate.
- The need to regulate the Assisted Reproductive Technology Services is mainly to protect the affected women and children from exploitation.
- The oocyte donor needs to be supported by an insurance cover, protected from multiple embryo implantation and the children born through assisted reproductive technology should be provided all rights equivalent to biological children.
- The cryopreservation of sperm, oocytes and embryo by the ART banks needs to be regulated and the bill intends to make Pre-Genetic Implantation Testing mandatory for the benefit of the child born through assisted reproductive Technology.

21. Swachh Bharat Mission (Grameen)

Why in News?

- The Cabinet has approved the launch of the Swachh Bharat Mission (Grameen) Phase – II.

Swachh Bharat Mission (Grameen):

- The Swachh Bharat Mission (Grameen) or SBM – G is a sub-mission of the Swachh Bharat Abhiyaan for the rural areas.
- The SBM – G seeks to eliminate open defecation from the country.
- It also aims at improving access to sanitation.
- In addition, it seeks to generate awareness to motivate communities to adopt sustainable sanitation practices, and encourage the use of appropriate technologies for sanitation.

Objectives of the Mission:

- ✓ Improving the quality of life in rural areas by promoting cleanliness and eliminating open defecation.
- ✓ Motivating communities and panchayati raj institutions to adopt sustainable sanitation practices.
- ✓ Encouraging appropriate technologies for sustainable sanitation.
- ✓ Developing community-managed solid and liquid waste management systems.
- The key components of the implementation of SBM-G will include:
 - ✓ Start-up activities including preparation of state plans.
 - ✓ Information Education Communication (IEC) activities.
 - ✓ Capacity building of functionaries.
 - ✓ Construction of household toilets.
 - ✓ Construction of community sanitary complexes.
 - ✓ A revolving fund at the district level to assist Self Help Groups and others in providing cheap finance to their members.
 - ✓ Funds for rural sanitary marts, where materials for the construction of toilets, etc., may be purchased.
 - ✓ Funds for solid and liquid waste management.
- Under SBM-G, the construction of toilets in government schools and aganwadis will be done by the Ministry of Human Resource Development and Ministry of Women and Child Development, respectively.
- The mission is under the Ministry of Jal Shakti.

22. Restructured Weather Based Crop Insurance Scheme (RWBCIS)

Why in News?

- Cabinet approved the revamping of “Pradhan Mantri Fasal Bima Yojana (PMFBY)” and “Restructured Weather Based Crop Insurance Scheme (RWBCIS)”.

RWBCIS:

- This scheme aims to mitigate the hardship of the insured farmers against the likelihood of financial loss on account of anticipated crop loss resulting from adverse weather conditions relating to rainfall, temperature, wind, humidity, etc.
- RWBCIS uses weather parameters as “proxy” for crop yields in compensating the cultivators for deemed crop losses. Pay-out structures are developed to the extent of losses deemed to have been suffered using the weather triggers.
- Launched in 2016, the scheme covers major food crops (cereals, millets and pulses) and oilseeds, and also commercial/horticultural crops.

Farmers Covered:

- All farmers including sharecroppers and tenant farmers growing the notified crops in the notified areas are eligible for coverage. However, farmers should have an insurable interest on the insured crop. All farmers availing Seasonal Agricultural Operations (SAO) loans from Financial Institutions (i.e. loanee farmers) for the crop(s) notified are covered on a compulsory basis. The Scheme is optional for the non-loanee farmers. They can choose between WBCIS and PMFBY, and also the insurance company.

23. Happiness Classes

Why in News?

- On her upcoming visit to India next week along with US President Donald Trump, First Lady Melania Trump will visit a Delhi government school, where she will attend a happiness curriculum class.

Highlights:

- The curriculum is one of the flagship schemes of the Delhi government in the education sector launched in July 2018 in all government schools.

Delhi's 'happiness curriculum':

- The curriculum calls for schools in India to promote development in cognition, language, literacy, numeracy and the arts along with addressing the well-being and happiness of students.

- It further says that future citizens need to be “mindful, aware, awakened, empathetic, firmly rooted in their identity...” based on the premise that education has a larger purpose, which cannot be in isolation from the “dire needs” of today’s society.
- For the evaluation, no examinations are conducted, neither will marks be awarded.
- The assessment under this curriculum is qualitative, focusing on the “process rather than the outcome” and noting that each student’s journey is unique and different.

Objectives of this Curriculum:

- The objectives of this curriculum include developing self-awareness and mindfulness, inculcating skills of critical thinking and inquiry, enabling learners to communicate effectively and helping learners to apply life skills to deal with stressful and conflicting situations around them.
- The curriculum is designed for students of classes nursery through the eighth standard. Group 1 consists of students in nursery and KG, who have bi-weekly classes (45 minutes each for one session, which is supervised by a teacher) involving mindfulness activities and exercise.
- Children between classes 1-2 attend classes on weekdays, which involves mindfulness activities and exercises along with taking up reflective questions.
- The second group comprises students from classes 3-5 and the third group is comprised of students from classes 6-8 who apart from the aforementioned activities, take part in self-expression and reflect on their behavioural changes.

Learning outcomes of this Curriculum:

- The learning outcomes of this curriculum are spread across four categories:
 - ✓ becoming mindful and attentive (developing increased levels of self-awareness, developing active listening, remaining in the present);
 - ✓ developing critical thinking and reflection (developing strong abilities to reflect on one’s own thoughts and behaviours, thinking beyond stereotypes and assumptions);
 - ✓ developing social-emotional skills (demonstrating empathy, coping with anxiety and stress, developing better communication skills) and
 - ✓ developing a confident and pleasant personality (developing a balanced outlook on daily life reflecting self-confidence, becoming responsible and reflecting awareness towards cleanliness, health and hygiene).

24. H1N1 infection of Supreme Court Judges

Why in News?

- Five judges of the Supreme Court of India have been affected by Swine Flu which is caused by the H1N1 virus.



Highlights:

- In order to prevent the further spread of the virus, many measures have been taken by the Ministry of Health & Family Welfare, Government of India:
- The First Aid Post (FAP) of CGHS (Central Government Health Scheme) was strengthened at the Supreme Court
- All the judges were provided treatment as per the protocol. Prophylactic treatment was also given to all who have come in contact with them including their family members.
- All five judges were kept in home isolation. Of these, three Judges have already resumed their duty and two continue to be under home isolation/observation and are recovering.
- The courtrooms and residences are being sanitised.
- Awareness information regarding preventive measures was disseminated to all concerned.
- H1N1 is a seasonal infection which usually occurs every year with two peaks (One in January to March and other between July and September).

Swine Flu (H1N1):

- Swine influenza, also called pig influenza, swine flu, hog flu and pig flu, is an infection caused by any one of several types of swine influenza viruses. Swine influenza virus is any strain of the influenza family of viruses that is endemic in pigs.
- Influenza A (H1N1) virus is the subtype of influenza A virus that is the most common cause of human influenza.

- It is an orthomyxovirus that contains the glycoproteins haemagglutinin and neuraminidase. For this reason, they are described as H1N1, H1N2 etc. depending on the type of H or N antigens they express with metabolic synergy.
- Haemagglutinin causes red blood cells to clump together and binds the virus to the infected cell. Neuraminidase is a type of glycoside hydrolase enzyme which helps to move the virus particles through the infected cell and assist in budding from the host cells.
- Some strains of H1N1 are endemic in humans and cause a small fraction of all influenza-like illness and a small fraction of all seasonal influenza. Other strains of H1N1 are endemic in pigs (swine influenza) and in birds (avian influenza).
- H1N1 influenza (or swine flu) is a highly contagious acute respiratory disease of pigs caused by type A influenza virus that regularly causes outbreaks of influenza in pigs. Swine flu viruses do not normally infect humans. However, sporadic human infections with swine flu have occurred.
- Most commonly, these cases occur in people with direct exposure to pigs (e.g., children near pigs at a fair or workers in the swine industry). However, there have been cases of human-to-human spread of swine flu.

25. International Judicial Conference

Why in News?

- The President of India delivered the valedictory address at the International Judicial Conference being organised by the Supreme Court of India, in New Delhi.

International Judicial Conference:

- The Conference was organized by the Supreme Court of India.
- The theme of the Conference was ‘Judiciary and the Changing World’.
- Important Topics of discussion at the Conference included:
 - ✓ Gender Justice,
 - ✓ Contemporary Perspectives on Protection of Constitutional Values,
 - ✓ Dynamic Interpretations of the Constitution in a Changing World,
 - ✓ Harmonization of Environment Protection vis-à-vis Sustainable Development and
 - ✓ Protection of Right to Privacy in the Internet Age

“Just-World” Hypothesis:

- The “Just World” fallacy is associated with the actions of bringing fair actions towards education, health, gender equality and other social issues.

- The Conference introduced the “Just World” concept in the Judicial System of India.
- By this it aims to take the judicial system of the country to every citizen irrespective of their gender.
- Also, it aimed to bring upon gender equality in other crucial areas where women have still not earned their recognition, especially the areas of mining and military.

26. Ways to Measure Poverty in India

Why in News?

- President Donald Trump praised India for having lifted over 270 million people out of poverty in a single decade, and said that “12 Indian citizens are lifted out of extreme poverty every single minute of every single day”.

Highlights:

- Poverty can be defined as a condition in which an individual or household lacks the financial resources to afford a basic minimum standard of living.
- The official poverty line is the expenditure incurred to obtain the goods in a “poverty line basket” (PLB). Poverty can be measured in terms of the number of people living below this line (with the incidence of poverty expressed as the head count ratio). The “depth” of poverty indicates how far the poor are below the poverty line.
- Six official committees have so far estimated the number of people living in poverty in India, the working group of 1962; V N Dandekar and N Rath in 1971; Y K Alagh in 1979; D T Lakdawala in 1993; Suresh Tendulkar in 2009; and C Rangarajan in 2014.
- The government did not take a call on the report of the Rangarajan Committee and therefore, poverty is measured using the Tendulkar poverty line. As per this, 21.9% of people in India live below the poverty line.
- The PLB comprises goods and services considered essential to a basic minimum standard of living, food, clothing, rent, conveyance, and entertainment.
- The price of the food component can be estimated using calorie norms or nutrition targets. Until the 1990s, the calorie norms method was used — it was based on the minimum number of calories recommended by the Indian Council of Medical Research (ICMR) for a household of five members.
- The Lakdawala Committee assumed that health and education is provided by the state, therefore, expenditure on these items was excluded from the consumption basket it proposed.

- Since expenditure on health and education rose significantly in the 1990s, the Tendulkar Committee included them in the basket. As a result of revisions to the basket and other changes in the method of estimation, the percentage of people living below the poverty line in 1993-94 rose from 35.97% to 45.3%.
- Expenditure on health and education were not considered until the Tendulkar Committee, which was criticized for setting the poverty line at just Rs 32 per capita per day in urban India (and at Rs 27 in rural India).
- The Rangarajan Commission was criticized for selecting the food component arbitrarily, the emphasis on food as a source of nutrition overlooks the contribution of sanitation, healthcare, access to clean water, and prevalence of pollutants.



Importance of Poverty Estimation:

- Poverty numbers matter because central schemes like Antyodaya Anna Yojana (which provides subsidized foodgrains to households living below the poverty line) and Rashtriya Swasthya Bima Yojana (health insurance for BPL households) use the definition of poverty given by the NITI Aayog or the erstwhile Planning Commission.

- The Centre allocates funds for these schemes to states based on the numbers of their poor. Errors of exclusion can deprive eligible households of benefits.

Other methods of estimation of Poverty:

- Oxford University researchers Sabina Alkire and James Foster devised the multidimensional poverty index (MPI) to capture poverty using 10 indicators: nutrition, child mortality, years of schooling, school attendance, ownership of assets, and access to proper house, electricity, drinking water, sanitation, and clean cooking fuel.
- The MPI is a more comprehensive measure of poverty because it includes components that capture the standard of living more effectively.
- It uses “outcomes” rather than expenditure, the presence of an undernourished person in the household will result in it being classified as “poor”, regardless of the expenditure on nutritious food.

27. Centralized Public Grievance Redress and Monitoring System

Why in News?

- The Union Minister for Personnel, Public Grievances & Pensions has recently launched the Centralized Public Grievance Redress and Monitoring System (CPGRAMS) 7.0 version.

CPGRAMS:

- CPGRAMS is one of the flagship initiatives for the reformation in governance started by the Indian central government through addressing the grievances of general public.
- The system has been designed in-house by the National Informatics Centre team.
- It was created in June 2007 by the Department of Administrative Reforms & Public Grievances. Under the public grievance mechanism, any citizen of India can raise their problems, grievance or pleas to the central govt and state government Ministries and Departments. Grievances can be submitted to all-important portfolio ministers and departments. It has a telephonic feedback feature also.

28. ICoSDiTAUS-2020

Why in News?

- ICoSDiTAUS-2020 a two-day International Conference on Standardisation of Diagnosis and Terminologies in Ayurveda, Unani and Siddha Systems of Medicine was concluded in New Delhi.

ICoSDiTAUS-2020:

- The conference was jointly organized by the Ministry of AYUSH and the WHO at New Delhi
- It adopted the “New Delhi Declaration on Collection and Classification of Traditional Medicine (TM) Diagnostic Data”.
- The New Delhi declaration emphasised the commitment of the countries to Traditional Medicine (TM) as a significant area of health care.
- It further sought the opportunity for including traditional systems of medicine like Ayurveda, Unani and Siddha in the International Classification of Diseases (ICD) of WHO which is the standard diagnostic tool for health management across the world.

29. Pigmentary Disorders

Why in News?

- A Rs. 3.6 crore grant has been given to promote research on pigmentary disorders.

Highlights:

- The grant in the form of an Intermediate Fellowship Award was given to an Assistant Professor at Faridabad-based Regional Centre for Biotechnology by the Wellcome Trust/DBT India Alliance.
- The award consists of a grant of Rs 3.60 crore for a period of five years.

Pigmentary Disorders:

- Physiological pigmentation is a critical defense mechanism by which skin is protected against harmful UV radiations.
- Inefficient pigmentation predisposes to skin cancers, which are one of the leading causes of cancer-associated deaths worldwide.
- Further, pigmentary disorders (both hypo and hyper pigmentary) are considered a social stigma and therefore they impart long-term psychological trauma and tremendously hamper mental well-being of patients.
- The current therapeutic strategies are not efficient in alleviating pigmentary disorders.
- The research project to be taken up under the award would seek to identify novel targetable molecular players that critically regulate pigmentation process. Further, the researchers would try to repurpose commercially available drugs for the treatment of pigmentary disorders.

- In the long run, this project is expected to have a two-pronged benefit for society – protection from UV-induced skin cancers and potential treatment options for pigmentary disorders.
- So far, the focus in the pigmentation biology field has been to understand the enzymes regulating melanin synthesis and, on the melanosome,, proteins involved in their biogenesis and maturation. However, melanosome biogenesis and melanin synthesis are complex phenomena and other cellular organelles could potentially regulate this process.

30. ADIP Scheme

Why in News?

- The PM will distribute assistive aids and devices to senior citizens (under the Rashtriya Vayoshri Yojana-RVY) and the physically challenged (Under ADIP Scheme) at a mega distribution camp at Prayagraj.

Highlights:

- This is said to be the biggest ever distribution camp being conducted in the country in terms of the number of beneficiaries covered, number of appliances distributed and value of aids and appliances distributed.
- In the mega camp, over 56,000 assistive aid and devices of different types will be distributed free of cost to over 26,000 beneficiaries. The cost of the aids and devices is over Rs 19 Crore.
- The objective is to provide assistance through these aids and devices to the daily living and socio-economic development of the Divyangjan (physically challenged) and Senior Citizens.



ADIP Scheme:

- This is the Assistance to Disabled persons for purchasing/fitting of aids/appliances (ADIP) scheme, under the Ministry of Social Justice & Empowerment, GOI. The main objective of the scheme is to assist the needy disabled persons in procuring durable, sophisticated and scientifically manufactured, modern, standard aids and appliances that can promote their physical, social and psychological rehabilitation, by reducing the effects of disabilities and enhance their economic potential. The scheme is implemented through implementing agencies such as NGOs, National Institutes under the Ministry of Social Justice & Empowerment and ALIMCO (a PSU that manufactures artificial limbs).

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- Assistive devices are given to PwDs with an aim to improve their independent functioning, and to arrest the extent of disability and occurrence of secondary disability.
 - The aids and appliances that are given under the ADIP scheme will be BIS certified to the extent possible.
 - Eligibility: A person satisfying all the following conditions are eligible:
 - ✓ Indian citizen of any age
 - ✓ Has 40% disability or more (must have the requisite certificate)
 - ✓ Monthly income, not more than Rs.20000.
 - ✓ In the case of dependents, income of parents/guardians should not exceed Rs.20000.
 - ✓ Must not have received assistance during the last 3 years for the same purpose from any source. However, for children below 12years of age, this limit would be one year.



3. SCIENCE & TECHNOLOGY

1. National Mission on Quantum Technologies & Applications

Why in News?

- The Finance Minister in budget 2020 has announced a National Mission on Quantum Technologies & Applications (NM-QTA).

Quantum Technology:

- Quantum Technology is based on the principles of quantum theory, which explains the nature of energy and matter on the atomic and subatomic level.
- It concerns the control and manipulation of quantum systems, with the goal of achieving information processing beyond the limits of the classical world.
- Its principles will be used for engineering solutions to extremely complex problems in computing, communications, sensing, chemistry, cryptography, imaging and mechanics.
- This key ability makes quantum computers extremely powerful compared to conventional computers when solving certain kinds of problems like finding prime factors of large numbers and searching large databases.

Quantum Mechanics:

- It is a fundamental theory in physics which describes nature at the smallest – including atomic and subatomic – scales. At the scale of atoms and electrons, many of the equations of classical mechanics, which describe how things move at everyday sizes and speeds, cease to be useful. In classical mechanics, objects exist in a specific place at a specific time.
- However, in quantum mechanics, objects instead exist in a haze of probability; they have a certain chance of being at point A, another chance of being at point B and so on.

NM-QTA:

- The mission will function under the Department of Science & Technology (DST).
- It will be able address the ever increasing technological requirements of the society, and take into account the international technology trends. The mission will help prepare next generation skilled manpower, boost translational research and also encourage entrepreneurship and start-up ecosystem development.

Significance:

- Quantum technologies are rapidly developing globally with a huge disruptive potential. The range of quantum technologies is expected to be one of the major technology disruptions that will change entire paradigm of computation, communication and encryption.

- It is perceived that the countries who achieve an edge in this emerging field will have a greater advantage in garnering multifold economic growth and dominant leadership role.
- It has become imperative both for government and industries to be prepared to develop these emerging and disruptive changes.
- It will establish standards to be applied to all research and help stimulate a pipeline to support research and applications well into the future.

2. Live attenuated Classical Swine Fever Vaccine (IVRI-CSF-BS)

Why in News?

- IVRI releases live attenuated Classical Swine Fever (CSF) cell culture vaccine (indigenous strain).

Highlights:

- Classical Swine Fever (CSF) is one of the most important diseases of pigs causing high mortality with an annual loss of approximately Rs. 4.299 billion.
- A lapinized CSF vaccine (Weybridge strain, UK) is being used in India since 1964 for controlling the disease. The vaccine is produced by sacrificing large numbers of rabbits for each batch.
- Lapinization refers to the weakening or modification of a virus or vaccine by its serial passage through rabbits.
- The country's total requirement is 22 million doses per year and hardly 1.2 million doses are produced per year by the lapinized vaccine, as only 50 doses are produced from a single rabbit spleen.
- In order to do away with the sacrificing of rabbits and increase productivity, IVRI had earlier developed a cell culture CSF vaccine by adapting the lapinized vaccine virus in cell culture. Since the cell culture vaccine is from a foreign strain (Weybridge Strain, UK), IVRI has further developed a new CSF Cell Culture Vaccine by attenuating an indigenous virulent CSF virus in cell culture. The vaccine virus has very high titre and lakhs of doses can be produced very easily in cell culture and the country's requirement can be easily fulfilled using this new vaccine. The new vaccine is ready for release and commercial production will be completed in less than a year.
- The new vaccine will be part of the Government's One Health Initiative and result in huge savings as it will nip the spread of the virus at the animal stage so that it does not pass on to the human population.

- Due to a very high titre of vaccine virus, this vaccine would be the most economical CSF vaccine costing around less than Rs 2/- per dose as against Rs 15-25/- of lapinized CSF vaccine and Rs.30/dose (approx.) for an imported Korean vaccine being used in the country.
- Besides, the new vaccine gives immunity for two years as compared to 3 to 6 months of protection under the vaccines currently being used.
- The vaccine is safe, potent, does not revert to virulence and provides protective immunity from day 14 of the vaccination until 24 months studied so far.
- The vaccine has been tested on around 500 pigs at multiple locations.
- The new vaccine has been developed by a team of IVRI scientists.

Indian Veterinary Research Institute (IVRI):

- Established in 1889, the Indian Veterinary Research Institute (IVRI) is one of the premier research institutions dedicated to livestock research and development of the region.
- It is under the administrative control of the Indian Council of Agricultural Research (ICAR), New Delhi.
- IVRI is located in Izatnagar, Bareilly in UP.

3. Dead Star Dragging Spacetime

Why in News?

- Astronomers have recently discovered that a dead star in space is dragging spacetime around itself.

Highlights:

- The scientific phenomenon is not a new one as Einstein himself predicted that any spinning body drags the fabric of spacetime in his general theory of relativity, and coined the process “frame-dragging.”
- Researchers were able to finally see the theory proven after scientists searched for an example with a greater gravitational pull, and found one in a white dwarf and neutron star pair. Scientists measured when the light flashes of the pulsars would arrive on Earth for a period of over 20 years. Over the two decades, they noticed that there were slight changes in their calculations, meaning the object had “drifted” from its original location.
- Since there were no other explanations for the movement, astronomers realized that the gravitational force of the pairing had caused the pulsar’s orbit to change its orientation over time by altering spacetime around it.

- Even after 100 years, the theory of general relativity continues to pass tests as its predictions are found to agree with new observations. Just a few years ago, one major aspect was finally confirmed, gravitational waves.

Spacetime:

- Spacetime is any mathematical model which fuses the three dimensions of space and the one dimension of time into a single four-dimensional manifold. Spacetime diagrams can be used to visualize relativistic effects, such as why different observers perceive where and when events occur differently.

4. Big Data to Fight Novel Coronavirus

Why in News?

- Chinese mobile operators and technology firms are supporting the tracking and prevention of pneumonia caused by the novel coronavirus with the help of big data.

Highlights:

- Telecom giant China Unicom has set up a group-wide team of more than 100 big data technicians and experts to provide data analysis and intelligent applications to the government using algorithm models.
- It provides big data analysis reports on epidemic-related population flow to 31 provincial traffic and health departments.
- GeTui, a smart data provider, has studied the number of people travelling from Wuhan, the hardest-hit city of the epidemic outbreak in central China, and released their distribution density in a heat map.
- The travelers from Wuhan were distributed across a wide range of rural areas, especially in Henan, Hunan and Sichuan provinces, according to the heat map.
- Yonyou, a software and cloud services company, has updated its cloud service platform, using the Internet of Things and big data technologies to connect the supply and demand of medical resources between medical enterprises and hospitals at the center of the epidemic.
- The platform had released the demand for medical supplies of 30 hospitals, involving protective clothing, masks, goggles, surgical gowns and shoe covers.
- One can use the Baidu Map application to check the population density in business districts, hospitals and transportation hubs, in order to avoid crowded places, which is key to preventing and controlling the epidemic.

- Epidemic information and protection knowledge collected with big data has been shared with nearly 80 million users every day through Toutiao, a popular news feed mobile app in China.

Big Data:

- Big data is a field that treats ways to analyze, systematically extract information from, or otherwise deal with data sets that are too large or complex to be dealt with by traditional data-processing application software.

5. Flaw observed in paper claiming Coronavirus transmission during incubation

Period

Why in News?

- A Correspondence published in the The New England Journal of Medicine (NEJM) about an asymptomatic Chinese woman infecting a German during the incubation period of the novel coronavirus turns out to be wrong as it was based on inaccurate information.

Highlights:

- The development is significant given that China's National Health Commission Minister had first warned that the novel virus might be spreading even during the incubation period when symptoms do not show up.
- Government authorities spoke to the Chinese woman after NEJM published the finding. And it turns out that the Chinese woman did indeed have symptoms during her stay in Germany, when she came in contact with the German who fell sick.
- But no tests were carried out in Germany to confirm if she was infected with the novel virus. She underwent testing for the novel coronavirus after her return to China and tested positive for the virus.
- The NEJM paper confirming it meant that the novel virus indeed has the capability to infect people even before symptoms show up overtly. If it were true, it would mean that there is a possibility that people could spread the virus long before they know they have been infected.
- The finding establishes that the virus was not transmitted by the Chinese woman during the incubation period and that the German man was not infected as a result of such transmission.
- The transmission had happened after the incubation period and when she was exhibiting symptoms.

- WHO said that, asymptomatic infection may be rare, and transmission from an asymptomatic person is very rare with other coronaviruses, such as Middle East Respiratory Syndrome (MERS) coronavirus.
- The main driver of novel coronavirus transmission is people who exhibit overt symptoms. Such people will spread the virus more readily through coughing and sneezing.

6. Project to Map India's Genetic Diversity gets Nod

Why in News?

- The government has cleared an ambitious gene-mapping project that is being described as the “first scratching of the surface of the vast genetic diversity of India”.

Highlights:

- The project is said to be among the most significant of its kind in the world because of its scale and the diversity it would bring to genetic studies. The ‘Genome India’ project will involve 20 leading institutions including the Indian Institute of Science (IISc) in Bengaluru and a few IITs.
- The first stage of the project will look at samples of 10,000 persons from all over the country to form a grid that will enable the development of a reference genome.

Significance:

- Mapping the diversity of India's genetic pool will lay the bedrock of personalised medicine and put it on the global map. Considering the diversity of population in our country, and the disease burden of complex disorders, including diabetes, mental health, etc., it may be possible to take action before the onset of a disease through genome studies.
- Mapping of India's genetic landscape is critical for next generation medicine, agriculture and for bio-diversity management. The project may help to get a sharper understanding of diseases transmitted genetically down the line as well as some healthy attributes.

7. Muktoshti (IET 21845)- New Rice Variety

Why in News?

- Researchers have developed and commercialized a rice variety that is resistant to arsenic.

Muktoshri:

- The new rice variety, Muktoshti — also called IET 21845 —, was developed jointly by the Rice Research Station at Chinsurah coming under West Bengal's Agriculture Department and the National Botanical Research Institute, Lucknow.

- A gazette notification for the commercial use of Muktooshi was made by West Bengal last year.
- During our multilocational trials, it was found that this variety uptakes very less amount of arsenic from soil and water in comparison to other varieties of rice.
- The rice is long and thin, and aromatic. Across the State, thousands of farmers have started cultivation, even in areas where arsenic in groundwater is not an issue, because of the aroma and the yield.

Significance:

- West Bengal is among the States with the highest concentration of arsenic in groundwater, with as many as 83 blocks across seven districts having higher arsenic levels than permissible limits. Several studies have shown that arsenic from groundwater and the soil can enter the food chain through paddy.
- According to the WHO, long-term exposure to arsenic, mainly through drinking water and food, can lead to poisoning. Skin lesions and skin cancer are the most characteristic effects.

8. Solar Orbiter to Map Sun's Poles

Why in News?

- NASA and the European Space Agency (ESA) are gearing up to send a new probe toward the Sun to take a unique look at its blazing poles.

Highlights:

- The Solar Orbiter is due launch to space atop an Atlas 5 rocket from Cape Canaveral, deploying an array of solar panels and antennas before setting off on its 10-year voyage to the Sun.
- It will use the gravitational influence from Earth and Venus to whip itself as close as 26 million miles from the Sun or 95% of the distance between the star and Earth the probe will map the star's poles, which could allow scientists for the first time to observe the concentrated source of solar wind that permeates our solar system.
- Solar wind is soup of charged particles that are highly concentrated at the poles and beam through our solar system, affecting satellites and electronic devices on Earth.
- Solar Orbiter carries ten instruments packed behind a massive 324-pound (147 kg) heat shield, three of which will peer through tiny windows and face the Sun to survey how its surface changes over time.

Layers of Sun:

- **Photosphere:** This is the Sun's deepest layer, and the layer visible to human eyes directly from the Earth. It is also called the solar surface. Much of this layer is covered by granulation caused by the bubbling gas within the convection layer and sunspots caused by strong magnetic fields.
- **Chromosphere:** This layer of the Sun is located between 250 miles and 1300 miles above the photosphere. The chromosphere has temperatures around 4000 degrees Kelvin at the base, and 8000 degrees Kelvin at the top.
- **Corona:** This layer is the Sun's outermost layer. It starts at roughly 1300 miles over the photosphere and it has no upper limit. Its temperature is between 500,000 degrees Kelvin to 1 million degrees Kelvin. The corona cannot be seen with bare eyes.
- **Core:** The core is the Sun's middle region where energy is generated through thermonuclear reactions which creates extreme temperatures of about 15 million degrees Celsius. These nuclear reactions use hydrogen to produce helium.
- **Radiative Zone:** This zone is amidst the core and the convective zones, and it is roughly 70 percent of the Sun's radius. Energy produced through nuclear fusion in the core moves steadily outwards as electromagnetic radiation, taking over 170,000 years to radiate through the radiative zone.
- **Convection Zone:** This layer of the sun is above the radiative zone and it is the outer most layer of the Sun's interior. It stretches from depths of roughly 200,000 kilometers right up to the visible surface.

9. Genome Mapping

Why in News?

- Recently the government has given clearance to an ambitious gene-mapping project, estimated to be worth Rs 238 crore, known as 'The Genome India Project'.

Highlights:

- Genome refers to an organism's complete set of DNA, which includes all its genes and mapping these genes simply means finding out the location of these genes in a chromosome.

Genome Mapping:

- Genome mapping essentially means figuring out the location of a specific gene on a particular region of the chromosome and also determining the location of and relative distances between other genes on that chromosome.

- Genome mapping enables scientists to gather evidence if a disease transmitted from the parent to the child is linked to one or more genes. Furthermore, mapping also helps in determining the particular chromosome which contains that gene and the location of that gene in the chromosome.

Importance of Decoding Genome:

- Genome maps have been used to find out genes that are responsible for relatively rare, single-gene inherited disorders such as cystic fibrosis and Duchenne muscular dystrophy. Genetic maps may also point out scientists to the genes that play a role in more common disorders and diseases such as asthma, cancer and heart disease among others.

Human Genome Project (HGP):

- One of the most comprehensive genome mapping projects in the world is the Human Genome Project (HGP), which began in 1990 and reached completion in 2003.
- The international project, which was coordinated by the National Institutes of Health and the US Department of Energy, was undertaken with the aim of sequencing the human genome and identifying the genes that contain it.
- The project was able to identify the locations of many human genes and provide information about their structure and organisation.

10. Variants of Ransomware Attacks

Why in News?

- There are three main modes of distribution for the major ransomware families that are set to increase their attacks this year, security researchers warned on the occasion of Safer Internet Day.

Highlights:

- The research highlights how ransomware tries to slip unnoticed past security controls by abusing trusted and legitimate processes, and then harnesses internal systems to encrypt the maximum number of files and disable back-up and recovery processes before an IT security team catches up.
- Ransomware that spread by replicating itself is called a 'cryptoworm'. The WannaCry attack that caused damage worldwide in 2017 is an example of this kind of ransomware.
- These malware also spread as ransomware-as-a-service (RaaS), which are sold on the dark web as a distribution kit (for example, Sodinokibi).

- The third most common way of their spread is as automated active adversary attack, where attackers manually deploy the ransomware following an automated scan of networks for systems with weak protection.
- Everything is designed to avoid detection while the malware encrypts as many documents as possible as quickly as possible and makes it hard to recover the data.

How to Protect our system from Ransomware?

- Have a list of all devices connected to your network and that any security software you use on them is up to date to detect.
- Keep regular back-ups of your most important and current data on an offline storage device as this is the best way to avoid having to pay a ransom when affected by ransomware.
- Administrators should enable multi-factor authentication on all management systems that support it, to prevent attackers disabling security products during an attack.

11. Saliva of patients contain COVID-19 Virus

Why in News?

- The novel coronavirus SARS-CoV-2 can also be found in saliva, according to a study carried out on 12 patients admitted in hospitals with laboratory-confirmed infection.

Highlights:

- The study carried out by researchers in Hong Kong and published in the journal Clinical Infectious Diseases has demonstrated the potential of using saliva as a non-invasive specimen for confirming infection and for viral load monitoring during the period of hospitalisation.
- The use of saliva is preferred over nasopharyngeal or oropharyngeal specimens because this would reduce the discomfort to the patient and reduce the health hazards to healthcare workers during repeated sampling.
- The virus taken from the patients was also cultured in the lab. Three viral cultures tested positive for the virus, while two tested negative. This confirms that saliva contain live novel virus SARS-CoV-2.
- The presence of live virus in saliva, as confirmed by positive culture, indicates that this body fluid may allow the spread of the virus. Besides direct or indirect contact, the SARS-CoV-2 virus can be transmitted through droplets.

- Not only saliva secreted by salivary glands, the saliva specimens can also contain secretions coming down from the nasopharynx, or coming up from the lung via the action of cilia lining the airway.
- Viral load often peaked at day 10 after symptom onset. Thus, early detection and isolation of cases was strategic for infection control.

12. Hope Spacecraft

Why in News?

- The UAE is on the verge of making history after turning its dream of becoming the first Arabic and Islamic country to send a spacecraft to Mars into a reality through a spacecraft named Hope.

Highlights:

- Although this spacecraft was assembled on U.S. soil, it will not be exploring the red planet for NASA.
- Hope is instead an effort by the United Arab Emirates.
- As a newcomer, the UAE has taken a novel approach. It could have tried to do everything itself, developing homegrown technology similar to what India has done.
- That would have taken years longer. It could have bought someone else's spacecraft design, which would have been the quickest path.
- The country has sought partners with long experience in sending machines into space. This, its space team believed, would help avoid many of the pitfalls of trying to pull off such missions for the first time while training future engineers who will be expected to step up to bigger roles in the next mission.
- In the process, the country's leaders hope to sow seeds for future companies. Hope will be just one of a four robotic spacecraft scheduled to launch this summer during a once-in-26-months alignment of Earth and Mars that enables a relatively short trip to the red planet. India celebrated putting a spacecraft in orbit around Mars and boasted how its price tag was a fraction of that for MAVEN, a NASA probe that arrived two days earlier. But it did not perform any significant discoveries.
- MAVEN has determined how quickly the Martian atmosphere is being stripped away by the solar wind: about 4 pounds a second. This information is an important clue in the puzzle of understanding why early Mars, which was warmer and wetter, turned into the cold, barren, almost airless place it is today.

- Hope's aim is to fill in a gap in MAVEN's findings by looking at the dynamics closer to the ground that influence the rate of leaking.
- Hope will give scientists a global view of Martian weather, noting changes in temperature and other conditions during the course of a day.

13. Aditya L-1 Mission

Why in News?

- The Indian Space Research Organisation (ISRO) is also preparing to send its first scientific expedition to study the Sun. Named Aditya-L1, the mission, expected to be launched early next year, will observe the Sun from a close distance, and try to obtain information about its atmosphere and magnetic field.

Highlights:

- Earlier this month, 47 new papers were published in a special supplement of The Astrophysical Journal, analysing data from the first three flybys of the Parker Solar Probe, NASA's historic mission to the Sun. ISRO categorises Aditya L1 as a 400 kg-class satellite, that will be launched using the Polar Satellite Launch Vehicle (PSLV) in XL configuration. The space-based observatory will have seven payloads (instruments) on board to study the Sun's corona, solar emissions, solar winds and flares, and Coronal Mass Ejections (CMEs), and will carry out round-the-clock imaging of the Sun. The mission will be undertaken in collaboration between various labs of ISRO, along with institutions like the Indian Institute of Astrophysics (IIA), Bengaluru, Inter University Centre for Astronomy and Astrophysics (IUCAA), Pune, and Indian Institute of Science, Education and Research (IISER), Kolkata. Aditya L1 will be ISRO's second space-based astronomy mission after AstroSat, which was launched in September 2015.
- What makes a solar mission challenging is the distance of the Sun from Earth (about 149 million km on average, compared to the only 3.84 lakh km to the Moon) and, more importantly, the super hot temperatures and radiations in the solar atmosphere.

Importance of Solar Mission:

- The solar weather and environment, which is determined by the processes taking place inside and around the sun, affects the weather of the entire system.
- Variations in this weather can change the orbits of satellites or shorten their lives, interfere with or damage onboard electronics, and cause power blackouts and other disturbances on Earth.

- Knowledge of solar events is key to understanding space weather. To learn about and track Earth-directed storms, and to predict their impact, continuous solar observations are needed. Every storm that emerges from the Sun and heads towards Earth passes through L1, and a satellite placed in the halo orbit around L1 of the Sun-Earth system has the major advantage of continuously viewing the Sun without any occultation/eclipses.
- Aditya L1 will perform continuous observations looking directly at the Sun. NASA's Parker Solar Probe has already gone far closer, but it will be looking away from the Sun.
- The earlier Helios 2 solar probe, a joint venture between NASA and space agency of erstwhile West Germany, went within 43 million km of the Sun's surface in 1976.

Lagrange point:

- L1 refers to Lagrangian/Lagrange Point 1, one of five points in the orbital plane of the Earth-Sun system. Lagrange Points are positions in space where the gravitational forces of a two-body system (like the Sun and the Earth) produce enhanced regions of attraction and repulsion.
- These can be used by spacecraft to reduce fuel consumption needed to remain in position. The L1 point is home to the Solar and Heliospheric Observatory Satellite (SOHO), an international collaboration project of NASA and the European Space Agency (ESA).

14. EU's Data Strategy

Why in News?

- The European Commission has released a 'European strategy for data to ensure the human-centric development of Artificial Intelligence' and a white paper on artificial intelligence.

Highlights:

- The new documents present a timeline for various projects, legislative frameworks, and initiatives by the European Union, and represent its recognition that it is slipping behind American and Chinese innovation.
- The strategy lays out "why the EU should act now". The blueprint hopes to strengthen Europe's local technology market by creating a "data single market" by 2030 to allow the free flow of data within the EU.
- To aid a "data-agile economy", the Commission hopes to implement an enabling legislative framework for the governance of common European data spaces by the latter half of the year.

- Between 2021 and 2027, the Commission will invest in a High Impact Project to jump-start data infrastructure. Several other initiatives are laid out, including a cloud services marketplace.

Reason for the Policy:

- The EU has the potential to be successful in the data-agile economy. It has the technology, the know-how and a highly skilled workforce. However, competitors such as China and the US are already innovating quickly and projecting their concepts of data access and use across the globe.
- With American and Chinese companies taking the lead on technological innovation, Europe is keen to up its own competitiveness.

Indian Context:

- The Economic Survey of 2018 envisioned a similar use of non-personal data. Just as the EU's strategy discusses "data for public good", the chapter titled "Data 'Of the People, By the People, For the People'" advocated that the government step in to sectors that private players ignore, marking the first time India's Economic Survey has isolated "data" as a strategic focus.
- Other data integration efforts have been announced or implemented by NITI Aayog (the National Data & Analytics Platform), the Smart Cities Mission (India Urban Data Exchange), and the Ministry of Rural Development (DISHA dashboard).
- In 2018, the National Informatics Centre worked with PwC and other vendors to create a Centre of Excellence for Data Analytics aimed at providing data analysis help to government departments.

15. Convalescent Plasma Therapy

Why in News?

- In the absence of any preventive vaccine or specific antivirals for treating COVID-19 patients infected with the novel coronavirus SARS-CoV-2, a pharmaceutical company in China has turned to plasma taken from people who have recovered from the infection to treat critically ill patients.

Convalescent Plasma Therapy:

- The therapy aims to use the antibodies in the convalescent plasma to minimise the presence of the virus in patients
- Donors must be recovered patients who are up to the standard for being discharged from hospital.

- Only plasma will be collected while red blood cells, white blood cells and blood platelets will be transfused back into the donor's body
- Donating plasma causes little harm to the donor, and there is no need to worry

How it works:

- People who have recently recovered still have antibodies to the coronavirus circulating in their blood.
- Antibodies are proteins produced and secreted by B cells. They bind to foreign substances that invade the body, such as pathogens. The term “antibody” refers to its function, which is to bind to an antigen. Another name for this protein molecule is immunoglobulin
- Injecting those antibodies into sick patients could help patients' better fight the infection.
- This treatment will transfer the immunity of a recovered patient to a sick patient, an approach that has been used previously in flu pandemics.

16. Habitable-zone Planet Finder (HPF)

Why in News?

- At 100 light-years from Earth, a low-mass star was sending signals in a pattern that suggested that an exoplanet was orbiting the star confirmed the Habitable-zone Planet Finder (HPF).

Habitable-zone Planet Finder:

- NASA's Kepler mission observed a dip in the host star's light, suggesting that the planet was crossing in front of the star during its orbit.
- To confirm, researchers turned to an instrument called Habitable-zone Planet Finder (HPF). It has confirmed that there is indeed an exoplanet.
- HPF is an astronomical spectrograph, built by Penn State University scientists, and recently installed on the 10m Hobby-Eberly Telescope at McDonald Observatory in Texas.
- The instrument is designed to detect and characterize planets in the habitable zone – the region around the star where a planet could sustain liquid water on its surface – around nearby low-mass stars.
- The newly confirmed planet, called G 9-40b, is the first one validated by HPF. It is about twice the size of Earth and orbits its star once every six Earth-days.

How it Works:

- A spectrograph is an instrument that splits light into its component wavelengths.

- Scientists then measure the properties of light over a specific portion of the spectrum and draw conclusions on what is responsible for the trends they observe.

Significance:

- Kepler's observations alone were not enough to confirm a planet. It was possible that a close stellar companion was responsible for the dip in the star's light.
- Precision spectroscopic observations from HPF ruled out this possibility.
- Shooting a high-power laser into the air, researchers generated a "laser guide star", and subsequent observations found no evidence of blending of light or other stellar companions.
- Finally, using HPF, an analysis of a set of radial velocities helped provide estimates for the planet's mass.

17. Jupiter's atmosphere has more water than Previous Estimates

Why in News?

- A study based on data from NASA's Juno mission showed that water makes up about 0.25% of the molecules in Jupiter's atmosphere along its equator, almost three times that of the Sun.

Highlights:

- The study provided the first findings on the gas giant's abundance of water since the space agency's 1995 Galileo mission.
- According to the researchers, Jupiter may be extremely dry compared to the Sun, a comparison based not on liquid water, but on the presence of its components, oxygen and hydrogen.
- They said Jupiter was likely the first planet to form, and it contains most of the gas and dust that wasn't incorporated into the Sun.
- Water abundance also has important implications for the gas giant's meteorology and internal structure.
- Juno's surprise discovery that the atmosphere was not well mixed even well below the cloud tops is a puzzle that researchers are still trying to figure out. Juno's Microwave Radiometer (MWR) observes Jupiter from above using six antennas that measure atmospheric temperature at multiple depths simultaneously.
- The MWR takes advantage of the fact that water absorbs certain wavelengths of microwave radiation, the same trick used by microwave ovens to quickly heat food.

- The measured temperatures are used to constrain the amount of water and ammonia in the deep atmosphere, as both molecules absorb microwave radiation.
- From its orbital perch, the radiometer was able to collect data from a far greater depth into Jupiter's atmosphere than the Galileo probe, where the pressure reaches about 480 psi.

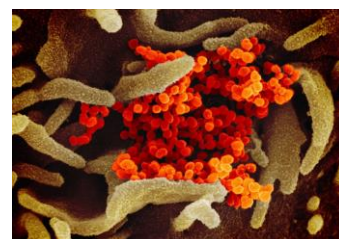
18. Structure of SARS-CoV-19 Key Protein Mapped

Why in News?

- Researchers at the University of Texas at Austin and the National Institutes of Health, U.S., have produced a 3D atomic scale map of the protein of the novel coronavirus (SARS-CoV-2) that binds to and infects human cells.

Highlights:

- Mapping the 3D structure of the protein, spike (S) glycoprotein, will allow better understanding of how the virus binds to the human cells. Knowing the structure of the spike protein will, in turn, allow scientists to develop vaccines and antivirals against the virus and even better diagnostics.
- Like other coronaviruses, SARS-CoV-2 virus particles are spherical and have mushroom-shaped proteins called spikes protruding from their surface, giving the particles a crown-like appearance. The spike binds and fuses to human cells, allowing the virus to gain entry. The spike protein of the novel coronavirus shares 98% sequence identity with the spike protein of the bat coronavirus. The researchers also found that like in the case of the SARS coronavirus, the spike protein of the novel coronavirus (SARS-CoV-2) that causes COVID-19 disease binds to the cellular receptor called angiotensin-converting enzyme 2 (ACE2), which serves as the entry point into human cells. But unlike in the case of SARS, the spike protein of the novel coronavirus binds to the cell receptor with much higher affinity, 10- to 20-fold higher. The much greater binding affinity to the cell receptor explains the apparent high human-to-human transmissibility of the virus compared with the SARS coronavirus.
- The researchers tested three monoclonal antibodies specific to SARS virus for their ability to bind to the novel coronavirus. But none of the three antibodies tested were found to be effective in inhibiting the novel coronavirus from binding to the human receptor.
- Knowing the atomic-level structure of the 2019-nCoV spike will allow for additional protein engineering efforts that could improve antigenicity and protein expression for vaccine development.



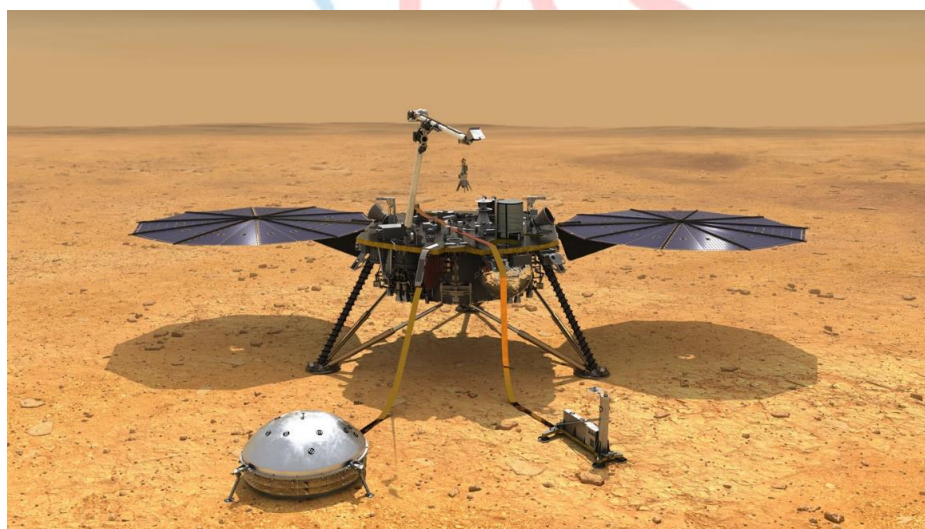
19. InSights Mission

Why in News?

- It's now more than a year since NASA's InSight lander mission touched down on Mars on November 26, 2018. This week, NASA published a set of six papers to reveal a planet alive with quakes, dust devils and strange Magnetic Pulses.

Highlights:

- The InSight mission is part of NASA's Discovery Program.
- It is being supported by a number of European partners, which include France's Centre National d'Études Spatiales (CNES), the German Aerospace Center (DLR) and the United Kingdom Space Agency (UKSA).
- InSight is the first mission dedicated to looking deep beneath the Martian surface. Among its science tools are a seismometer for detecting quakes, sensors for gauging wind and air pressure, a magnetometer, and a heat flow probe designed to take the planet's temperature.
- Mars trembles more often than expected, but also more mildly. This emerged from readings of the ultra-sensitive seismometer, called the Seismic Experiment for Interior Structure (SEIS).



- The instrument enables scientists to hear multiple trembling events from hundreds to thousands of miles away.
- Mars doesn't have tectonic plates like Earth, but it does have volcanically active regions that can cause rumbles. SEIS has found more than 450 seismic signals to date, the majority of which are believed to be quakes (as opposed to data noise created by environmental factors, like wind).

- Billions of years ago, Mars had a magnetic field. Although it is no longer present, it left behind magnetised rocks that are now between 61 m to several km below ground. InSight is equipped with a magnetometer, which has detected magnetic signals.
- InSight measures wind speed, direction and air pressure nearly continuously. Weather sensors have detected thousands of passing whirlwinds, which are called dust devils when they pick up grit and become visible.
- InSight has two radios. One is for regularly sending and receiving data. The other radio is designed to measure the “wobble” of Mars as it spins. This X-band radio, also known as the Rotation and Interior Structure Experiment (RISE), can eventually reveal whether the planet’s core is solid or liquid. A solid core would cause Mars to wobble less than a liquid one would.

20. Biofuel from Microorganisms

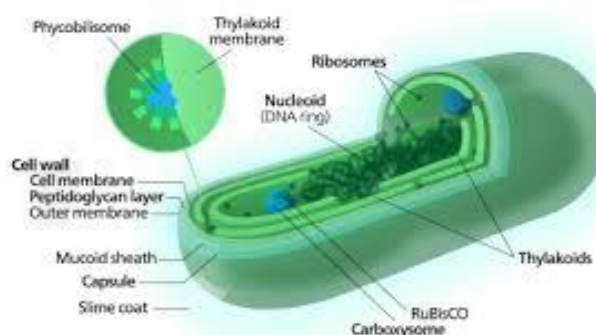
Why in News?

- Researchers at the International Centre for Genetic Engineering and Biotechnology (ICGEB) are developing a method to improve the growth rate and sugar content of a marine microorganism called *Synechococcus* sp. PCC 7002.

Highlights:

- Most biotechnological processes, including biofuel production, are dependent on the availability of low-cost and sustainable supply of sugars and a nitrogen source.
- The sugars typically come from plants. Plants utilize light energy through the process of photosynthesis to convert carbon dioxide in the atmosphere into biological components such as sugars, proteins and lipids.
- However, some bacteria, such as the cyanobacteria (also known as blue-green algae), too can perform photosynthesis and produce sugar by fixing the carbon dioxide in the atmosphere.

Using Cyanobacteria:



- The yield of sugars from cyanobacteria could potentially be much higher than that of land-based crops.
- Further, unlike plant-based sugars, cyanobacterial biomass provides a nitrogen source in the form of proteins.
- Cyanobacteria are found in both fresh and marine waters.
- Using marine cyanobacteria could be better as freshwater is increasingly getting scarce.
- However, there is a need to significantly improve their growth rates and sugar content in order to improve the economic feasibility of marine cyanobacteria-based sugar production.
- A team from the International Centre for Genetic Engineering and Biotechnology has achieved this. This could give the biofuel sector a boost.
- They have successfully engineered a marine cyanobacterium called *Synechococcus* sp. PCC 7002 which showed a higher growth rate and sugar (glycogen) content. When grown on air, the growth was doubled and the glycogen content of the cells increased by about 50%.
- The Department of Biotechnology (DBT) sponsored the research.



4. ECONOMY

1. Dividend Distribution Tax (DDT)

Why in News?

- Finance Minister announced abolition of DDT to be paid by companies in her budget speech.

DDT:

- A dividend is a return given by a company to its shareholders out of the profits earned by the company in a particular year.
- Dividend constitutes income in the hands of the shareholders which ideally should be subject to income tax.
- However, the income tax laws in India provide for an exemption of the dividend income received from Indian companies by the investors by levying a tax called the DDT on the company paying the dividend.

Who were required paid DDT?

- Any domestic company which is declaring/distributing dividend is required to pay DDT at the rate of 15% on the gross amount of dividend as mandated under Section 115O of the Income Tax Act.
- DDT was also applicable on mutual funds.

Why it is Scrapped?

- Every MNE investing in India is faced with the question of tax-efficient repatriation of profits that accumulate here.
- The dividend that the holding company would receive would have already suffered substantial tax in India, although indirectly.
- The foreign company would normally be required to pay tax on the dividend so received in its home jurisdiction.
- DDT being a tax in the Indian company and the foreign company not paying taxes directly on such dividend income in India, it would not be able to claim foreign tax credit in its home jurisdiction.
- This resulted in a double whammy for foreign companies as, at a group level, they suffered double taxation.

2. Finance Commission

Why in News?

- The report of the Fifteenth Finance Commission, along with an Action Taken Report, was tabled in Parliament. The Commission, headed by N K Singh, had submitted its Report to the President in December 2019.

Highlights:

- Article 280 of the Constitution requires that a Finance Commission be constituted to recommend the distribution of the net proceeds of taxes between the Centre and states, and among the states.
- Parliament may by law determine the requisite qualifications for appointment as members of the commission and the procedure of selection.
- Every member will be in office for the time period as specified in the order of the President, but is eligible for reappointment provided he has, by means of a letter addressed to the president, resigned his office.

Functions:

- The distribution between the Union and the States of the net proceeds of taxes which are to be, or may be, divided between them and the allocation between the States of the respective shares of such proceeds;
- The principles which should govern the grants-in-aid of the revenues of the States out of the Consolidated Fund of India; The measures needed to augment the Consolidated Fund of a State to supplement the resources of the Panchayats and Municipalities in the State on the basis of the recommendations made by the Finance Commission of the State;
- Any other matter referred to the Commission by the President in the interests of sound finance.

Appointment Criteria:

- As per the provisions contained in the Finance Commission [Miscellaneous Provisions] Act, 1951 and The Finance Commission (Salaries & Allowances) Rules, 1951, the Chairman of the Commission is selected from among persons who have had experience in public affairs, and the four other members are selected from among persons who:
 - ✓ are, or have been, or are qualified to be appointed as Judges of a High Court; or have special knowledge of the finances and accounts of Government;
 - ✓ or have had wide experience in financial matters and in administration;
 - ✓ or have special knowledge of Economics.

Powers:

- Have all powers of a civil court as per the Civil Procedure Code, 1908.
 - ✓ Can summon and enforce the attendance of any witness or ask any person to deliver information or produce a document, which it deems relevant.
 - ✓ Can ask for the production of any public record or document from any court or office
 - ✓ Shall be deemed to be a civil court for purposes of Sections 480 and 482 of the Code of Criminal Procedure, 1898

Removal:

- A member may be disqualified if:
 - ✓ He is mentally unsound;
 - ✓ He is an undischarged insolvent;
 - ✓ He has been convicted of an immoral offence;
 - ✓ His financial and other interests are such that it hinders the smooth functioning of the commission.

3. Government Abolishes Duty on Polyester Manufacturing chemical PTA

Why in News?

- Domestic manufacturers of polyester have called the move of abolishing duty on PTA chemical a huge relief for the industry, claiming they had been fighting to remove the duty for four-and-a-half years.

Highlights:

- Background During her Budget speech, Finance Minister Nirmala Sitharaman said the government was abolishing in public interest an anti-dumping duty that was levied on imports of a chemical called PTA.

PTA:

- Purified Terephthalic Acid (PTA) is a crucial raw material used to make various products, including polyester fabrics.
- PTA makes up for around 70-80% of a polyester product and is, therefore, important to those involved in the manufacture of man-made fabrics or their components.
- This includes products like polyester staple fibre and spun yarn. Our cushions and sofas may have polyester staple fibre fillings. Some sportswear, swimsuits, dresses, trousers, curtains, sofa covers, jackets, car seat covers and bed sheets have a certain proportion of polyester in them.

- PTA is a raw material for many of the industries. There has been persistent demand that they should be allowed to source that particular product at an affordable rate, even if it means importing it.
- Easy availability of this critical input at competitive prices was desirable to unlock immense potential in the textile sector, seen as a significant employment generator.
- The duty had meant importers were paying an extra \$27-\$160 for every 1,000 kg of PTA that they wanted to import from countries like China, Taiwan, Malaysia, Indonesia, Iran, Korea and Thailand. Removing the duty will allow PTA users to source from international markets and may make it as much as \$30 per 1,000 kg cheaper than now.

Reason for Anti-Dumping Duty:

- The anti-dumping duty on PTA was imposed after two domestic manufacturers, MCC PTA India Corp Pvt Ltd and Reliance Industries Ltd, approached the Directorate General of Trade Remedies (DGTR) in October 2013.
- The companies had argued that some countries had been exporting the product to India at prices lower than its value in their own domestic markets. This dumping of PTA into the Indian market had a significant adverse impact on the domestic industry, they argued.
- The polyester manufacturing companies had alleged that the product's cost had become more expensive domestically, which made their own products pricier and less attractive for their domestic and international buyers.

Anti-Dumping Duties:

- An anti-dumping duty is a protectionist tariff that a domestic government imposes on foreign imports that it believes are priced below fair market value.
- Dumping is a process where a company exports a product at a price lower than the price it normally charges in its own home market.
- The World Trade Organization does not regulate the actions of companies engaged in dumping, but instead focuses on how governments can or cannot react to dumping.

4. Cabinet approves Amendment to bring Cooperative Banks under Regulatory control of RBI

Why in News?

- The Union Cabinet on Wednesday approved amendments to the Banking Regulation Act to empower the central bank to have greater control over cooperative banks, in order to prevent malpractices and ensure better regulation.

- The cooperative banks will now be required to fulfil regulatory requirements that have been set for scheduled commercial banks.

Highlights:

- Currently, cooperative banks are governed by dual control of cooperative societies as well as the Reserve Bank of India (RBI). While the role of cooperative society includes incorporation, registration, management, recovery, audit, supersession of board of directors and liquidation, central bank's role is responsible for regulatory functions.
- These amendments will apply to urban co-operative banks and multi-state cooperative banks.
- There are 1,540 cooperative banks with 8.6 crore depositors' money, with around ₹5 lakh crore deposits in the country and the proposed amendment will protect the depositors.
- The government's move towards amending the banking regulation law to strengthen the cooperative banks comes months after Punjab Maharashtra Bank (PMC) collapsed.
- In September, the Reserve Bank of India had superseded the lender's board for six months after finding under-reporting of loans. Cash withdrawals were capped at ₹1,000 per account for six months, but subsequently relaxed to ₹50,000 as panic spread among depositors. Such banks will also be audited as per RBI's norms, the minister said after the Cabinet meeting.
- Following the amendments, the recruitment for the banks' management will be based on certain qualifications and appointment of the chief executive officer will also require prior permission from the banking regulator, as in case of commercial banks.

5. Regulation of Online Retailers

Why in News?

- With allegations against e-commerce companies that they were violating the norms laid down by the government, it issued a press note in 2018 to clarify the FDI policy in relation to e-commerce companies.

Highlights:

- E-Commerce companies having foreign investment can operate only a marketplace model and there are restrictions on the inventory-based model of e-commerce.
- E-commerce entities providing marketplace will not directly or indirectly influence the sale price of goods or services and shall maintain level playing field.

- Services should be provided by e-commerce marketplace entity or other entities in which e-commerce marketplace entity has direct or indirect equity participation or common control, to vendors on the platform at arm's length and in a fair and non-discriminatory manner.
- Such services will include but not limited to fulfilment, logistics, warehousing, advertisement/marketing, payments and financing.
- Cash back provided by group companies of marketplace entity to buyers shall be fair and non-discriminatory.
- For the purposes of this clause, provision of services to any vendor on such terms that are not made available to other vendors in similar circumstances will be deemed unfair and discriminatory.
- Representations have been received in the Department for Promotion of Industry and Internal Trade (DPIIT) alleging that some e-commerce platforms are engaged in predatory pricing and are providing excessive discounts. These representations are under examination. The Competition Commission of India has ordered investigation against FlipKart and Amazon in order to determine whether the alleged exclusive arrangements, deep-discounting and preferential listing are being used as an exclusionary tactic to foreclose competition under a section of the Competition Act, 2002.

6. Uttarakhand's First Heli Services under UDAN Flagged Off

Why in News?

- Ministry of Civil Aviation (MoCA) operationalized the first ever helicopter services from Dehradun's Sahastradhara helipad to Gauchar, and Chinyalisaur under the Regional Connectivity Scheme – Ude Desh Ka Aam Nagrik (RCS-UDAN) of Government of India.

Highlights:

- Heritage Aviation will operate helicopter services from Sahastradhara to Gauchar and Chinyalisaur twice daily.
- For the Heli services, Viability Gap Funding (VGF) is provided under UDAN to keep the fares affordable for the common people.
- The State Government of Uttarakhand is also providing additional incentives to make the scheme more attractive.
- The helicopter services from the Sahastradhara helipad to Gauchar and Chinyalisaur had been the long pending demand of the people residing in the hilly areas.

- Heli services under UDAN are currently being operationalised between Chandigarh to Shimla, Shimla to Dharamshala & Shimla to Kullu.

Significance:

- The services on this route will boost the tourism sector in the Uttarakhand region and will also assist the Char Dham Yatra pilgrims as Gauchar is en route to Badrinath and Chinyalisaur is en route to Gangotri in the Uttarkashi district.

7. Air corridors with Central Asian Nations

Why in News?

- Apart from developing trade via the Chabahar port in Iran, India would like to explore setting up “air corridors” with five Central Asian nations.

Need of the Air Corridor:

- While flying time from Delhi to most of the Central Asian destinations is two hours, it may take two months for containers sent overland from India to reach these places,
- Availability of air corridors can boost trade in perishable goods, agricultural and food products. Lack of “overland connectivity had kept the total trade between India and Central Asia quite low at approximately \$2 billion a year.

Air Corridors:

- The air corridors – similar to what India established in 2018 with Afghanistan – would include regular cargo flights with special clearing and customs facilities to expedite the movement of goods, especially fresh fruit and other agricultural produce.

Significance:

- At present, most of the trade between Central Asia goes via Bandar Abbas in Iran, northern Europe or China. In recent years, the government has been seeking to develop more direct routes from Chabahar, a trilateral arrangement with Iran and Afghanistan, the International North South Transport Corridor (INSTC) and becoming a part the Ashgabat Agreement.

Ashgabat Agreement:

- Ashgabat Agreement envisages facilitation of transit and transportation of goods between Central Asia and the Persian Gulf.
- The Ashgabat Agreement has Oman, Iran, Turkmenistan and Uzbekistan as founding members. Kazakhstan has also joined this arrangement subsequently.

- The Ashgabat Agreement aims to develop the shortest trade route between Central Asian countries and Iranian and Omani ports.
- The transit agreement provides for a transit corridor across Central Asia and the Middle East through the continuous landmass between Kazakhstan, Uzbekistan, Turkmenistan, and Iran before reaching the Persian Gulf and into Oman.

Benefits for India:

- It would enable India to utilise this existing transport and transit corridor to facilitate trade and commercial interaction with the Eurasian region.
- This would synchronise efforts to implement the International North South Transport Corridor (INSTC) for enhanced connectivity.
- It would diversify India's connectivity options with Central Asia and have a positive influence on India's trade and commercial ties with the region.

INSTC:

- The INSTC (International North-South Transport Corridor) is a multi-modal trade transport network that includes rail, road, and water transport from Mumbai in India via Bandar Abbas in Iran to Moscow in Russia.
- The concept was initiated by Russia, India, and Iran in September 2000 to establish transportation networks among the member states and to enhance connectivity with the landlocked region of Central Asia.
- The INSTC envisages movement of goods from Mumbai (India) to Bandar Abbas (Iran) by sea, from Bandar Abbas to Bandar-e-Anzali (an Iranian port on the Caspian Sea) by road, and then from Bandar-e-Anzali to Astrakhan (a Caspian port in the Russian Federation) by ship across the Caspian Sea, and thereafter from Astrakhan to other regions of the Russian Federation and further into Europe by Russian railways.
- INSTC could facilitate India's economic integration with Eurasian economies and other countries in surrounding regions.

8. Oil Seeds Production

Why in News?

- Country needs 25 million tonnes of edible oils to meet its requirement at current consumption level of 19 kg per person per year.
- Out of the total requirement, 10.50 million tonnes are produced domestically from primary (Soybean, Rapeseed & Mustard, Groundnut, Sunflower, Safflower & Niger) and secondary

sources (Oil palm, Coconut, Rice Bran, Cotton seeds & Tree Borne Oilseeds) and remaining 60%, is met through import. The oilseed production of the country has been growing impressively.

- Despite this, there exists a gap between the demand and supply of oilseeds, which has necessitated sizeable quantities of imports.

Challenges:

- The major challenges in oilseed production is largely rain-fed conditions (70% area), high seed cost (Groundnut and Soybean), small holding with limited resources, low seed replacement rate and low productivity.

Govt. Intervention:

- To increase domestic availability and reduce import dependency, a National Mission on Edible Oils (NMEO) is proposed for next five years (2020-21 to 2024-25).
- NMEO covering three Sub-Missions to increase production of oilseeds and edible oils from
 - ✓ Primary Sources (Annual Crops, Plantation Crops and Edible TBOs)
 - ✓ Secondary Sources (Rice bran oil and Cotton seed oil)
 - ✓ Consumer Awareness for maintaining edible oil consumption constant at 19.00 kg per person per annum.
- The proposed mission will aim to increase production from 30.88 to 47.80 million tonnes of oilseeds which will produce 7.00 to 11.00 million tonnes of edible oils from Primary Sources by 2024-25.
- Similarly, edible oils from secondary sources will be doubled from 3.50 to 7.00 million tonnes.

Action points to Increase Production:

- The following action point will be initiated for increasing production and productivity of oilseeds and promotion of Secondary Sources of Edible oils:
 - ✓ Increasing seed replacement rate and varietal replacement rate
 - ✓ Promotion of oilseed in rice fallow/ potato areas
 - ✓ Promotion of oilseeds through intercropping
 - ✓ Extending oilseed cultivation in nontraditional area
 - ✓ Targeting 100 low productivity districts
 - ✓ Crop diversification in different regions
 - ✓ Promotion of community-based oil extraction unit
 - ✓ Value addition and promotion of export

- ✓ Promotion of rice bran and cotton seed oil
- ✓ Consumer awareness for judicious consumption of oils for good health
- The above strategies will deliberate the following output by the end of 2024-25:
 - ✓ Oilseed production will be increased from 30.88 to 47.80 million tonnes
 - ✓ Productivity will be increase from 1263 to 1587 kg per ha
 - ✓ Reduction in import dependence from 60% to 45%
 - ✓ Edible oil production will be 18.00 million tonne from 10.50 million tonnes.

9. Blue Revolution

Why in News?

- Realizing the immense scope for the development of fisheries and aquaculture, the Government of India has restructured the Central Plan Schemes under an umbrella of the Blue Revolution.

Highlights:

- The major components of the CSS on Blue Revolution scheme are as under:
 - ✓ Development of Inland Fisheries and Aquaculture
 - ✓ Development of Marine Fisheries, Infrastructure and Post-harvest Operations
 - ✓ National Scheme for Welfare of Fishermen
 - ✓ Monitoring, Control and Surveillance and other need-based Interventions (MCS)
 - ✓ Institutional Arrangement for Fisheries Sector
 - ✓ Strengthening of Database & Geographical Information System of the Fisheries Sector (SoDGIS)
 - ✓ National Fisheries Development Board and its activities (NFDB)

Outcomes:

- The Blue Revolution in India along with the Fish Farmers Development Agency (FFDA) brought an improvement in the aquaculture and fisheries sector with the introduction of new techniques of rearing, marketing, exporting and fish breeding.
- Some of the major outcomes of the Blue Revolution in India are mentioned below:
 - ✓ Currently, the Indian Fisheries Sector reached a production of 4.7 million tonnes of fish from a limit of 60,000 tonnes including 1.6 million tonnes of fish from freshwater aquaculture.
 - ✓ India is recorded to achieve an average annual growth of 14.8% as compared to the global average percentage of 7.5 in the production of fish and fish products.

- ✓ The fishery has become India's largest agricultural export over the last five years with a growth rate of 6% – 10%.
- ✓ India has become the world's second-largest producer of fish with exports worth more than 47,000 crore rupees.
- ✓ The fisheries and aquaculture production contributes 1% and 5% to India's GDP and Agricultural GDP respectively.

10. Apiary on Wheels

Why in News?

- The Minister for Road Transport & Highways flagged off 'Apiary on Wheels'.
- Apiary is a place in which a colony or colonies of bees are kept, as a stand or shed for beehives or a bee house containing a number of beehives.

'Apiary on Wheels':

- This a unique concept designed by the Khadi and Village Industries Commission (KVIC) for the easy upkeep and migration of Bee Boxes having live bee colonies.
- 'Apiary on Wheels' is a holistic approach to address the challenges faced by beekeepers. It is designed so as to reduce the labour and cost of maintaining and upkeeping Bee Boxes and live bee colonies across India.
- It is a platform that can carry 20 Bee Boxes from one place to another without any difficulty.
- Two large wheels on either side of the Apiary on Wheels and 4 separate compartments with independent doors, having 5 bee boxes each help the platform to remain intact without disturbing the live bee colonies. The Apiary on Wheels is also connected with a solar panel system which automatically triggers a fan inside the compartment as soon as the temperature reaches 35 degree centigrade or above.
- Not only this, the Apiary on Wheels also has sugar drips which help to feed the bees in the summer season.
- The Apiary on Wheels is like an attachment that can be easily connected with a tractor or a trolley and may be pulled to any suitable destination.
- Especially in summers, the beekeepers usually adopted crude methods to feed the bees and many bees used to die in the process. This concept of migration, cooling with the help of solar panels and sugar drips with zero risk to the lives of bees, will prevent any damages to the bee boxes or bee colonies and help produce quality honey.

Honey Mission:

- Under the Honey Mission, KVIC distributes bee-boxes among farmers and unemployed youths across the country to increase honey production and farmers' income.
- Under this, KVIC provides training, awareness and also bee boxes along with bee colonies to farmers.
- It was launched in 2017.

11. Nagpur Orange

Why in News?

- The first consignment of Nagpur oranges was flagged off to Dubai from Vashi, Navi Mumbai.

Nagpur Orange:

- Nagpur orange is rustic and pockmarked exterior which is sweet and has juicy pulp.
- It gives the city of Nagpur its pseudonym Orange City.
- It oranges blossom during the Monsoon season and are ready to be harvested from the month of December. The Geographical Indication was accorded to the Nagpur Orange by the registrar of GIs in India and is effective as of April 2014.
- Nagpur mandarin is one of the best mandarins in the world. Production of this fruit crop in the central and western part of India is increasing every year.
- Mrig crop (monsoon blossom), which matures in February – March, has great potential for export since arrivals of mandarin fruit in international market are less during this period.
- In the whole region only one variety of Nagpur Mandarin is grown.

12. Simplified Proforma for Incorporating Company Electronically (SPICe)

Why in News?

- The Corporate Affairs Ministry (MCA) has come out with the format of the new web form – SPICe+ – for the incorporation of companies.

SPICe:

- The webform – issued as part of the Centre's Ease of Doing Business initiative – has replaced the existing SPICe form.
- The web form will help save many procedures, time and cost for starting a business in India.

- The MCA has also come up with an AGILE PRO form, part of SPICe+, for GSTIN/ EPFO/ ESIC/ Profession Tax/ Bank Account.
- The MCA also said the RUN service will be applicable only for a change of name of an existing company with effect.

Components:

- SPICe+ has two parts — Part A for name reservation for new companies and Part B offering a bouquet of services including incorporation, DIN allotment, mandatory issue of PAN, mandatory issue of TAN, mandatory issue of EPFO and ESIC registration and mandatory opening of bank account for the company(through the AGILE PRO linked web form) besides allotment of GSTIN (if applied for).

13.Imported Food Inflation

Why in News?

- Is food inflation in India influenced by global price movements? On account of certain evidences it appears that international inflation influences domestic prices too.

Highlights:

- Retail and wholesale food inflation rates for December 2019 were the highest since November 2013 and December 2013 respectively. Simply put, since October or so, food inflation has made a comeback, both in India and globally.
- The United Nations Food and Agriculture Organisation's (FAO's) food price index, which is a measure of the change in international prices of a basket of major food commodities with reference to a base period (2002-04), touched 182.5 points in January 2020, the highest since the 185.8 level of December 2014.
- Also, the year-on-year inflation rate based on this index has risen steadily from 1.13% in August 2019 to 2.86% in September, 5.58% in October, 9.33% in November, 12.22% in December, and now, 11.33% for January 2020. This sharp surge in global food prices is reflected in trends in India as well. Annual consumer food price index (CFPI) inflation stood at just 2.99% in August 2019, before climbing to 5.11%, 7.89%, 10.01%, 14.19% and 13.63% in the succeeding five months. While the recent rise in domestic food prices has been blamed largely on "local" factors like poor rainfall during the first half (June-July) of the monsoon season and too much of it thereafter till about mid-November, some of it is also "imported". While global prices can be transmitted to the domestic market too through exports, traders would sell abroad if realisations are better relative to the local market.

Way Forward:

- The first is the novel coronavirus epidemic that has reduced Chinese buying of everything from palm oil and soyabean to milk powder and meat. Palm oil prices in Malaysia have plunged from 2,922 ringgit (\$719) to 2,725 ringgit (\$658) over the last one month.
- The second is crude oil. Brent crude prices had touched \$70 per barrel after the January 3 United States airstrike that killed Iran's top military commander, but have dropped since, closing at \$57.67/barrel.
- The third is the prospect of a bumper rabi (winter-spring) crop in India. The kharif harvest turned out to be not so good because of excess and unseasonal rain. That same rain, though, has helped boost rabi acreage by 9.5% compared to last year.
- The arrival of this crop in the mandis from March should cool down prices, especially of vegetables and pulses, which showed the highest year-on-year retail inflation of 50.19% and 16.71% in January.

14. North East Sustainable Development Goals Conclave 2020

Why in News?

- NITI Aayog is organising "Sustainable Development Goals (SDG) Conclave 2020: Partnerships, Cooperation and Development of North Eastern States" in Guwahati.

Highlights:

- The Conclave is being organised in association with the North Eastern Council, Government of Assam, Tata Trusts, United Nations Development Programme (UNDP) and Research and Information System for Developing Countries (RIS).
- The 3-day event will see representations from the highest offices of all the State Governments of the North East, Central Ministries, academia, civil society and international development organizations.
- The technical sessions would include sessions pertaining to SDG localisation in the northeast, economic prosperity and sustainable livelihoods, climate adaptive agriculture, health and nutrition, education, skill development and entrepreneurship, connectivity and infrastructure development & inequality and exclusion.
- NITI Aayog has the mandate of overseeing the adoption and monitoring of SDGs at the national and sub-national level.
- Progress in the northeast region is crucial in this decade of action for the country to achieve the SDGs by 2030.

15. In-flight Wi-Fi

Why in News?

- In-flight connectivity on Indian airlines could soon be a reality as domestic carrier Vistara gears up to launch its broadband service by March-end after approval by Department of Telecommunications (DoT).

Highlights:

- In-flight connectivity essentially allows those onboard aircraft to access voice, video and data services after the aircraft has attained an altitude of 3,000 meters.
- In-flight connectivity for aircraft flying over Indian airspace was approved by the DoT in May 2018.
- Passengers onboard some Vistara flights will be able to use data to make WhatsApp calls, send messages on Facebook, and read email.
- The in-flight connectivity service by Vistara, launched in partnership with Tata group firm Nelco, will be offered on its Dreamliners and Airbus 321 planes.
- In-flight connectivity relies on onboard antenna as well as satellites for Internet and mobile communications.
- In the case of the former, the signals are picked up by the onboard antenna from the nearest tower on the ground, though the connection does become an issue after a certain altitude if the aircraft is passing over an area with no towers.
- It works in a manner similar to how satellite TV signals are transmitted. So, an onboard router, which connects to the plane's antenna transmits data to a personal electronic device.
- The signals are then transmitted to ground station via satellites and is redirected to a billing server for calculation of the data consumption. Finally, the signal is relayed to the World Wide Web.
- While the telecom commission has allowed Internet onboard Internet services onboard, the telecom operator has said it will be made available when devices are used only on flight mode.
- As of now, in-flight connectivity is yet to launch on Indian airlines, though the service is offered by a host of airlines worldwide.
- While the provision of onboard WiFi is also available, not many airlines allow mobile communication. Over 30 airlines allow the use of mobile phone on aircraft.

16. ASKDISHA Chatbot

Why in News?

- In order to resolve queries of railway passengers over the internet pertaining to various services offered, Indian Railways had introduced the services of Artificial Intelligence-based ASKDISHA chatbot in October 2018 for the benefit of the users.

ASKDISHA Chatbot:

- IRCTC had launched this chat bot to answer various queries about ticket booking, cancellation and various value-added services.
- The chatbot is a special computer programme designed to simulate conversation with users, especially over the internet.
- It was jointly developed by IRCTC and CoRover Private Limited, a Bangalore-based startup. The first-of-its-kind initiative by IRCTC is aimed at facilitating accessibility by answering users' queries pertaining to various services offered to railway passengers.

What is the New Update?

- The ASKDISHA Chatbot was initially launched in English language but in order to further enhance the customer services rendered.
- To further strengthen the services of the chatbot, IRCTC has now powered voice-enabled ASKDISHA to converse with customers in Hindi language also in the e-ticketing site irctc.co.in. The customers can now ask queries to ASKDISHA in Hindi language by voice as well as text. On an average, around three thousand enquiries are being handled by ASKDISHA in Hindi language on daily basis and the figure is increasing day by day which also shows the acceptability of the new feature by the customer.
- IRCTC plans to launch ASKDISHA in more languages along with many other additional features in the near future.

17. Technical Textiles Mission

Why in News?

- The Cabinet Committee on Economic Affairs (CCEA) has approved the setting up of a National Technical Textiles Mission at a total outlay of ₹1,480 Crore.

Technical Textiles Mission:

- **Objective:** To position India as a global leader in technical textiles and increase the use of technical textiles in the domestic market.

- **Implementation:** For 4 years from 2020-2021.

Components of the National Technical Textiles Mission:

Component - I (Research, Innovation and Development):

- Will focus on research and development at both, fibre level and application-based in geo, agro, medical, sports and mobile textiles and development of bio-degradable technical textiles.
- Research activities will also focus on development of indigenous machinery and process equipment.
- Will have an outlay of ₹1,000 crores.

Component - II (Promotion and Market Development):

- Will be for promotion and development of market for technical textiles.
- Will aim at average growth rate of 15-20% per annum taking the level of domestic market size to 40-50 Billion USD by the year 2024.

Component - III (Export Promotion):

- Will focus on export promotion so that technical textile exports from the country reach from the ₹14,000 crore now to ₹20,000 crores by 2021-2022.
- Ensure 10% average growth every year till the Mission ends.
- An export promotion council for technical textiles will be set up.

Component- IV (Education, Training, Skill Development):

- Will promote technical education at higher engineering and technology levels related to technical textiles and its application areas.

Significance of the Mission:

- The Mission will focus on usage of technical textiles in various flagship missions, including strategic sectors. The use of technical textiles in agriculture, aquaculture, dairy, poultry, etc. JalJivan Mission; Swachh Bharat Mission; Ayushman Bharat will bring an overall improvement in cost economy, water and soil conservation, better agricultural productivity and higher income to farmers per acre of land holding in addition to promotion of manufacturing and exports activities in India.
- The use of geo-textiles in highways, railways and ports will result in robust infrastructure, reduced maintenance cost and higher life cycle of the infrastructure assets.
- Promotion of innovation amongst young engineer will be taken up by the Mission; along with creation of incubation centres and promotion of 'start-up' and Ventures'.

- The research output will be repositied with a ‘Trust’ with the Government for easy and assessable proliferation of the knowledge.
- A sub-component of the research will focus on development of bio degradable technical textiles materials, particularly for agro-textiles, geo-textiles and medical textiles.
- It will also develop suitable equipment for environmentally sustainable disposal of used technical textiles, with emphasis on safe disposal of medical and hygiene wastes.
- There is another important sub-component in the research activity aiming at development of indigenous machineries and process equipment for technical textiles, in order to promote ‘Make in India’ and enable competitiveness of the industry by way of reduced capital costs.

Current scenario of Indian Textiles Segment:

- Indian technical textiles segment is estimated at \$16 billion which is approximately 6% of the \$250 billion global technical textiles market.
- The penetration level of technical textiles in India varies between 5% and 10% against the level of 30% to 70% in developed countries.
- Indian textile industry is the 2nd largest manufacturer and exporter in the world, after China. The share of textile and clothing in India’s total exports stands at a significant 13 % (2017-18). The textile industry contributes to 7% of industry output in value terms, 2% of India’s GDP and to 15% of the country’s export earnings.

What are Technical Textiles?

Technical Textiles

- Technical textiles are fibres & fabrics which have been developed for their performance, and functional properties.
- They are often made of microfibrils (synthetic fibres up to 60 times finer than human hair)
- Technical Textiles are all around us.

<u>Uses</u>
Building Industry
Agricultural Industry
Medical Industry
Transport Industry
Armed Forces
Police
Performance Sportswear

- Technical textiles are textiles materials manufactured primarily for technical performance and functional properties rather than aesthetic characteristics.
- Technical Textiles products are divided into 12 broad categories (Agrotech, Buildtech, Clothtech, Geotech, Hometech, Indutech, Mobiltech, Meditech, Protech, Sportstech, Oekotech, Packtech) depending upon their application areas.

5. EOGRAPHY & ENVIRONMENT

1. Green India Mission

Why in News?

- According to the Economic Survey 2019-20 released on January 2020, a sum of Rs 343.08 crore has been released under the Green India Mission (GIM) for undertaking afforestation activities over an area of 126,916.32 hectare (ha) in 13 states.
- Between 2015-16 and 2018-19, the area brought under afforestation by GIM plantation activities stood at 87,113.86 ha, according to the data presented by Union Minister of State, Ministry of Environment, Forest and Climate Change.
- For afforestation to be achieved over an area of 126,916.32 ha in 2019-20, as the Economic Survey states, plantation activity under GIM would have to increase by around 45 per cent of where it stood in July 2019.

Green India Mission (GIM):

- National Mission for a Green India or GIM is one of the eight Missions outlined under India's action plan for addressing the challenge of climate change -the National Action Plan on Climate Change (NAPCC). GIM was launched in February 2014, is aimed at protecting, restoring and enhancing India's diminishing forest cover and responding to climate change by a combination of adaptation and Mitigation Measures.

Objectives:

- To increase green cover in India to the extent of five million hectares (mha) and improve the quality of existing green cover on another 5 mha.
- To improve eco-system services like carbon sequestration, hydrological services and biodiversity and provisioning services like fuel, fodder, and timber and non-timber forest produces. To increase forest-based livelihood income for about three million households.
- Eco-restoration of degraded open forests, Restoration of Grasslands, Restoration of Wetlands, Eco-restoration/afforestation of scrub, shifting cultivation areas, cold deserts, mangroves, ravines and abandoned mining areas etc.

Concerns and Challenges:

- The Lok Sabha Committee on Estimates' 30th report, 'Performance of the National Action Plan on Climate Change' pertaining to Ministry of Environment, Forest and Climate Change, released in December 2018 found fund shortage, leading to GIM missing its targets.

- The scheme is proposed for 10 years with an outlay of Rs 60,000 crore. During 2017-18, Rs 47.8 crore has been allocated for the scheme which is grossly insufficient as the committed liability for 2015-16 and 2016-17 is Rs 89.53 crore which is much more than the budget allocated.
- The afforestation done under the mission was only aimed at increasing tree count without considering the soil and weather conditions.
- Trees like eucalyptus were planted which make environmental problems worse rather than solving them.
- Planting of unsuitable trees may cause drought, and prevent biodiversity in the regions.
- Plantations only have value in terms of timber. The other ecological services provided by a forest like prevention of soil erosion, promoting biodiversity, providing livelihood etc. are not there at all.
- In most of the plantations, there is No Resident Wildlife.

2. Coal plants face ire of CPCB for failing to Curb Pollution

Why in News?

- The Central Pollution Control Board (CPCB) has pulled up 14 thermal power plants for not complying with a December 31, 2019 deadline to limit sulphur dioxide emissions.

Highlights:

- Thermal power plants are also one of the biggest contributors to the global nitrogen oxide levels.
- Nitrogen oxides are known to present visibility and respiratory issues, and they can also combine with other atmospheric gases and moisture to form acid rain and smog.
- To limit particulate matter, sulphur dioxide and nitrous oxide emission from thermal plants, India put in place a phased-approach that directs 440 coal-fired units to put in place measures to limit pollution by December 2022.
- Some of them claimed to have set in place the process for acquiring flu-gas desulphurisation technology where as others said they were yet to award tenders.
- Only one of these plants has actually implemented technology to limit emissions.
- As per Centre for Science and Environment (CSE) estimates, these norms can help reduce PM emissions by about 35%, NO_x emission by about 70%, and SO₂ emissions by more than 85% by 2026-27.

Central Pollution Control Board:

- The Central Pollution Control Board (CPCB) of India is a statutory organisation under the Ministry of Environment, Forest and Climate Change (Mo.E.F.C). It was established in 1974 under the Water (Prevention and Control of pollution) Act, 1974.
- The CPCB is also entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.
- The board conducts environmental assessments and research.
- It is responsible for maintaining national standards under a variety of environmental laws, in consultation with zonal offices, tribal, and local governments.
- It has responsibilities to conduct monitoring of water and air quality and maintains Monitoring Data.

National Green Tribunal (NGT):

- It is a specialised statutory body set up under the National Green Tribunal Act (2010) for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources.
- It draws inspiration from the India's constitutional provision of Article 48A which assures the citizens of India the right to a healthy environment.
- With the establishment of the NGT, India became the third country in the world to set up a specialised environmental tribunal, only after Australia and New Zealand, and the first developing country to do so.
- The Tribunal comprises of the Chairperson, the Judicial Members and Expert Members. They shall hold office for term of five years and are not eligible for reappointment.
- The Chairperson is appointed by the Central Government in consultation with Chief Justice of India (CJI) and is usually a retired judge of the Supreme court.
- The Principal Bench of the NGT is in New Delhi. It has regional benches in Pune (West), Bhopal (Central), Chennai (South) and Kolkata (East).

3. Kerala's ban on CFL and Filament Bulbs

Why in News?

- Kerala government has made a bold announcement that the state will impose a ban on the sale of compact fluorescent lamps (CFL) and incandescent (filament) bulbs starting November this year as part of sustainable energy policy.

Highlights:

- The project is also part of the long-term sustainable energy policy of the government to reduce the dependence on conventional energy sources and instead maximise potential on renewable sources like solar and hydel power.
- The announcement is in line with the government project of 'Filament-free Kerala' envisaged in 2018 as part of the state's Urja Kerala mission.
- Streetlights and bulbs in government offices across the state will be converted to light-emitting diode (LED) under the mission.
- LED bulbs are energy-efficient than filament or CFL bulbs and will, therefore, generate less waste. Also, filament bulbs contain the mercury element which, when broken, is polluting in nature.
- The government has said that nearly 2.5 crore LED bulbs have been produced on a mass scale in the state for public consumption.
- Consumers in the state can place orders for LED bulbs on the KSEB website in exchange for existing filament bulbs.
- The project to install solar panels on rooftops of households and residential complexes is also being promoted for sustainable living.

UJALA Scheme:

- The main objective is to promote efficient lighting, enhance awareness on using efficient equipment which reduce electricity bills and help preserve environment.
- Every grid-connected consumer having a metered connection from their respective Electricity Distribution Company can get the LED bulbs at about 40% of the market price under the UJALA Scheme.
- The Electricity Distribution Company and Energy Efficiency Services Limited (EESL) a public sector body of Government of India under Ministry of Renewable energy is implementing the programme.

4. Arctic ice melt can disrupt ocean currents and alter climate in Western Europe

Why in News?

- Researchers have discovered how an ocean water current, which plays a key role in keeping Western Europe warm, could be altered by an influx of large amounts of cold, fresh water from melting ice in the Arctic.

Highlights:

- The researchers said this fresh water is important in the Arctic since it floats above the warmer, salty water, and helps protect the sea ice from melting - in turn regulating the Earth's climate.
- The seawater current called the Beaufort Gyre keeps the polar environment in balance by storing fresh water near the surface of the Arctic ocean.
- Wind blows the gyre in a clockwise direction around the western Arctic Ocean, north of Canada, where it naturally collects fresh water from the melting of glaciers, and river runoff.
- As the fresh water is slowly released by the gyre into the Atlantic Ocean over a period of decades, it allows the Atlantic Ocean currents to carry it away in small amounts.
- Since the 1990s, the gyre has accumulated a large amount of fresh water - 8,000 cubic kilometres. The cause of this gain in freshwater concentration is the loss of sea ice in summer and autumn. Due to this decades-long decline of the Arctic's summertime ice cover, the Beaufort Gyre is more exposed to the wind, which has spun the gyre faster, trapping the fresh water in its current. The westerly winds have also persistently dragged the current in one direction for over 20 years, increasing its speed and size, as well as preventing the fresh water from leaving the Arctic Ocean. If the wind changes direction again, it could reverse the current, pulling it counter clockwise and releasing the water it has accumulated all at once.
- If the Beaufort Gyre were to release the excess fresh water into the Atlantic Ocean, it could potentially slow down its circulation. And that would have hemisphere-wide implications for the climate, especially in Western Europe.
- While the increased turbulence has helped keep the system balanced, it may also lead to further ice melt since it mixes layers of cold, fresh water with relatively warm, salt water below.

Importance of Beaufort Gyre:

- Water from the Arctic loses heat and moisture to the atmosphere, and sinks to the bottom of the ocean, where it drives water from the north Atlantic Ocean down to the tropics in a conveyor-belt-like current called the Atlantic Meridional Overturning Circulation.
- This current helps regulate the planet's climate by carrying heat from the tropically-warmed water to northern latitudes like Europe and North America, and if it is slowed down, it could negatively impact all life forms, especially marine creatures.

5. Pre-historic extinct elephant species in Kutch

Why in News?

- Scientists carrying out excavation in Kutch region of Gujarat stumbled upon a premolar tooth, Which belonged to an extinct ancient elephant called Deinotherium indicum

Highlights:

- This is the region's first occurrence of the mammal which, hitherto only known from two or three localities of Tapar in Gujarat, Haritalyangar in Himachal Pradesh, and Piram Island off the coast of Gujarat. Using a technique called biostratigraphy, it was noted that D. indicum lived roughly between 11 and 7 seven million years ago in India.
- In biostratigraphy, the presence of certain species from a known time period can be used to estimate the age of a deposit containing the same species in a different locality.
- Remains of D. indicum have been found in well-dated Siwalik deposits from Haritalyangar of Himachal Pradesh. These species were similar to modern elephant when it comes to their large bodies and limbs but they had flatter skulls, and a set of downwards pointing, curved tusks only on the lower jaw. Analyses of their skulls have shown that they probably also had a short, slightly bulbous trunk. This species was a fairly distant relative of today's elephants, both evolutionarily and in time. The deinotheriidae was first found in the fossil record approximately 28 million years old in Africa. The team plans to continue their studies in the Tapar beds of Kutch as it may be hiding many more fossils.
- There are also plans to create a dataset of species occurrences through time in western India and compare the trends in diversity seen there with those seen in the well-studied fossil record from the Siwaliks.

6. Jet Streams and their Role

Why in News?

- A British Airways flight broke the subsonic speed record during its New York-to-London journey, surpassing the previous record by 17 minutes, and completing the trip 80 minutes sooner than estimated.

Highlights:

- The Boeing 747-436 plane was able to achieve a speed of 1,327 kph as it was aided by a strong jet stream generated due to Storm Ciara. Other flights travelling across the North Atlantic from west to east also experienced shorter travel times.

Jet Streams:

- Jet streams are narrow bands of strong winds that flow over thousands of kilometres from west to east. Major jet streams are found near the upper levels of the atmosphere, around 9 to 16 km from the earth's surface, and can reach speeds of over 320 kph.
- The jet streams shift to the north or south depending on the season. During winters, the wind current is the strongest.
- They are also closer to the Equator during winter. The major jet streams are the Polar Front, Subtropical, and Tropical jet streams. In India, the Tropical jet stream influences the formation and duration of the summer monsoon.
- The polar jet streams form between the latitudes of 50 and 60 degrees north and south of the equator, and the subtropical jet stream is closer to the equator and takes shape at latitudes of 20 to 30 degrees.

Role of Jet Streams:

- Jet streams play a key role in determining the weather because they usually separate colder air and warmer air. Jet streams generally push air masses around, moving weather systems to new areas and even causing them to stall if they have moved too far away.
- A strong jet stream can provide a potent tailwind to a flight travelling from west to east. This helps reduce the travel time for such flights, as their speeds are boosted.

7. Thanatotheristes Species

Why in News?

- Scientists have found that a dinosaur fossil, found in Alberta in Canada in 2010, belongs to a new species of tyrannosaur. They have named it Thanatotheristes, which means “reaper of death”.

Thanatotheristes:

- Tyrannosaurs were one of the largest meat-eating dinosaurs to have ever lived, with very large and high skulls, and the best known among them is the Tyrannosaurus rex, celebrated in the Jurassic Park series.
- The 79-million-year-old fossil that the researchers have found is the oldest tyrannosaur known from northern North America.
- Thanatotheristes preyed on large plant-eating dinosaurs such as the horned xenoceratops and the dome-headed colepiocephale.

- The research suggests that tyrannosaurs did not have one general body type; rather different tyrannosaur species evolved distinct body sizes, skull forms and other such physical features.
- The fossil specimen is important to understand the Late Cretaceous period, which is the period when tyrannosaurs roamed the Earth.

8. Radio Tagging Indian pangolins

Why in News?

- Scientists have, for the first time, radio-tagged the Indian pangolin, an endangered animal, that is rarely sighted in forests.
- Researchers say tagging the animal will help understand the habits of the reclusive, nocturnal animal.

Pangolins:

- **IUCN status: Endangered**
- India is home to two species of pangolin.
- While the Chinese Pangolin (*Manis pentadactyla*) is found in northeastern India, the Indian Pangolin is distributed in other parts of the country as well as Sri Lanka, Bangladesh and Pakistan. Both these species are protected and are listed under the Schedule I Part I of the Wild Life (Protection) Act, 1972 and under Appendix I of the Convention on International Trade in Endangered Species (CITES).
- Commonly known as ‘scaly anteaters’, the toothless animals are unique, a result of millions of years of evolution.
- Pangolins evolved scales as a means of protection. When threatened by big carnivores like lions or tigers they usually curl into a ball.
- The scales defend them against dental attacks from the predators.

Why Radio Tagging?

- Pangolins are among the most trafficked wildlife species in the world. The International Union for the Conservation of Nature says these toothless animals have seen a rapid reduction in population.
- The projected population declines range from 50% to 80 % across the genus. Out of the eight species of pangolin, the Indian Pangolin and the Chinese Pangolin are found in India. Both these species are listed under Schedule I Part I of the Wildlife (Protection) Act, 1972.

- World Pangolin Day, celebrated on the third Saturday in February, is an international attempt to raise awareness of pangolins and bring together stakeholders to help protect these unique species from extinction.

Threats faced by Pangolins:

- The primary threat to most pangolin species is illegal hunting and poaching for local use and illicit international trade.
- This trade mainly involves pangolin scales and meat, which are primarily trafficked to East and Southeast Asia, and to a lesser extent other body parts.
- Other threats include habitat loss and degradation, which places additional pressure on pangolin populations.

9. Urban Heat Islands in India

Why in News?

- A recent study from IIT Kharagpur called “Anthropogenic forcing exacerbating the urban heat islands in India” noted that the relatively warmer temperature in urban areas, compared to suburbs, may contain potential health hazards due to heat waves apart from pollution.

Highlights:

- An Urban Heat Island (abbreviated as UHI) is where the temperature in a densely populated city is as much as 2 degrees higher than suburban or rural areas.
- The researchers focused on studying the difference between urban and surrounding rural land surface temperatures, across all seasons in 44 major cities from 2001 to 2017.
- They found evidence of mean daytime temperature of surface urban heat island (UHI Intensity) going up to 2 degrees C for most cities, as analysed from satellite temperature measurements in monsoon and post monsoon periods.

Reasons for Heat Islands:

- The materials used for pavements, roads and roofs, such as concrete, asphalt (tar) and bricks, which are opaque, do not transmit light, but have higher heat capacity and thermal conductivity.
- Trees and plants are characterised by their ‘evapotranspiration’, where there is a continuous water circulation cycle between environment and the plants, leading to moisture movement and heat reduction.

- The lack of such evapotranspiration in the city leads to the city experiencing higher temperature than its surroundings.

Impact of Urban Heat Islands (UHI):

- UHI s also decrease air quality in the cities, thanks to pollution generated by industrial and automobile exhaust, higher extent of particulate matter and greater amounts of dust than in rural areas.
- Cities tend to experience heat waves which affect human and animal health, leading to heat cramps, sleep deprivation and increased mortality rates.
- UHIs also impact nearby water bodies, as warmer water (thanks to the pavements, rooftops and so on) is transferred from the city to drains in sewers, and released into nearby lakes and creeks, thus impairing their water quality.

Tackling UHI:

- Use greener rooftops, using light-coloured concrete (using limestone aggregates along with asphalt (or tar) making the road surface greyish or even pinkish.
- These are 50% better than black, since they absorb less heat and reflect more sunlight. Likewise, we should paint rooftops green, and install solar panels there amidst a green background.
- The other is to plant as many trees and plants as possible. They can absorb excessive heat, retain water moisture and reduce temperature of an area significantly.

10.Sustainable Alternative Towards Affordable Transportation (SATAT)

Why in News?

- SATAT is an initiative aimed at setting up of Compressed Bio-Gas production plants and make it available in the market for use in automotive fuels as a developmental effort that would benefit both vehicle-users as well as farmers and entrepreneurs.
- The initiative was launched by the Ministry of Petroleum & Natural Gas in association with Public Sector Undertaking (PSU) Oil Marketing Companies (OMC) Indian Oil Corporation Ltd., Bharat Petroleum Corporation Ltd. and Hindustan Petroleum Corporation Ltd.

Biogas:

- It is produced naturally through a process of anaerobic decomposition from waste / bio-mass sources like agriculture residue, cattle dung, sugarcane press mud, municipal solid waste, sewage treatment plant waste, etc.

- After purification, it is compressed and called CBG, which has pure methane content of over 95%.
- Compressed Bio-Gas is exactly similar to the commercially available natural gas in its composition and energy potential.
- With calorific value and other properties similar to CNG, Compressed Bio-Gas can be used as an alternative, renewable automotive fuel.

Implementation:

- Compressed Bio-Gas (CBG) plants are proposed to be set up mainly through independent entrepreneurs.
- CBG produced at these plants will be transported through cascades of cylinders to the fuel station networks of OMCs for marketing as a green transport fuel alternative.
- There are multiple benefits from converting agricultural residue, cattle dung and municipal solid waste into CBG on a commercial scale:
 - ✓ Responsible waste management, reduction in carbon emissions and pollution
 - ✓ Additional revenue source for farmers
 - ✓ Boost to entrepreneurship, rural economy and employment
 - ✓ Support to national commitments in achieving climate change goals
 - ✓ Reduction in import of natural gas and crude oil
 - ✓ Buffer against crude oil/gas price fluctuations

11. Future of Earth 2020

Why in News?

- Five global risks that have the potential to impact and amplify one another in ways that may cascade to create a global systemic crisis have been listed by “The Future of Earth, 2020”, which was released by the South Asia Future Earth Regional Office, Divecha Centre for Climate Change, Indian Institute of Science.

Highlights:

- The report was prepared with the aim of reducing carbon footprint and halting global warming below 2 degree Celsius by 2050.
- The report, released by K. Kasturirangan, former Chairman, ISRO, lists five global risks:
 - ✓ Failure of climate change mitigation and adaptation
 - ✓ Extreme weather events
 - ✓ Major biodiversity loss and ecosystem collapse

- ✓ Food crises
- ✓ Water crises
- Offering examples of how the interrelation of risk factors play a role, scientists say extreme heat waves can accelerate global warming by releasing large amounts of stored carbon from affected ecosystems, and at the same time intensify water crises and/or food scarcity.
- The loss of biodiversity also weakens the capacity of natural and agricultural systems to cope with climate extremes, increasing our vulnerability to food crises, they point out.

Politics, Biodiversity and Climate Change:

- It is pointed out that over the last 18 months, major assessments by the Intergovernmental Panel on Climate Change, the US National Climate Assessment, and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, have all argued that time is running out to reduce greenhouse gas emissions.
 - ✓ This has inspired declarations of a climate crisis or climate emergency by the leaders of more than 700 cities, States and governments.
 - ✓ Yet, during 2019, the concentration of carbon dioxide in the atmosphere reached more than 415 ppm. Five years from 2014 to 2018 were the warmest recorded over land and ocean since 1880.
- Right-wing populism, a breed of politics that exploits people's fears during times of economic decline and growing inequality, and that which focuses on nationalist tendencies to clamp down on borders and reject immigrants is on the rise around the world.
- It is argued that this often leads to a denial of climate change facts or impacts.
 - ✓ The report highlights that humans have now "significantly altered" 75% of our planet's land area; about a quarter of species in assessed plant and animal groups are threatened.
 - ✓ Strains on food production are expected to increase, as a result of various forces including climate change, biodiversity loss, and a global population on the rise.

12. World's largest' Subterranean Fish

Why in News?

- Systematic exploration of the Meghalayan caves has been underway for almost 30 years and hundreds of kilometres of cave passages have been explored and mapped. In a cave in a remote forested area of Meghalaya's Jaintia Hills a research expedition found large specie of a subterranean fish (occurring under the earth's surface).

Blind fish:

- The blind fish was over 40 cm. It has not been named so far.
- It is nearly five times the mean length (85mm/8.5 cm) for all known subterranean fish to date. The only other species exceeding 300mm (30 cm) in length are eel-like Synbranchidae with nothing like the bulk of the new fish.
- The 250-known subterranean (occurring under the earth's surface) fish species around the world measure only around 8.5 cm on average.
- The specialists say that possibly one (or more) populations of these fish became isolated deeper in the caves and over generations became adapted to the dark, losing their eyes in the process. The experts feel that the fish species is very similar to the Golden Mahseer or the Tor Putitora, one of the most famous game fish of the Himalayan rivers.
- Unique characters that distinguishes it from the Golden Mahseer is the lack of pigmentation, a lack of eyes and of course, its subterranean habitat – being locked in caves. There are 'normal' Golden Mahseer in the area too but there is not much surface water (at least in the dry winter months) so fish end up in the cave pools and underground rivers.

Subterranean Ecosystems:

- Subterranean ecosystems are considered extreme, high-stress environments characterised by darkness, truncated food webs and food scarcity.
- Despite this, they harbour exceptional vertebrate and invertebrate taxa (21,000+ species), many of which are evolutionarily unique, and relics of ancient fauna given their long-term isolation.
- Many cave fish show different adaptations – some don't have eyes, some have reduced eyes, some don't have fins, some have weird body shapes.

13. Kerala opposes alternate Route bypassing Bandipur

Why in News?

- The Kerala government has opposed in the Supreme Court an alternative route proposed by Karnataka to bypass the night-time traffic ban on the National Highway 212 through the Bandipur National Park.

Highlights:

- The Karnataka government had banned night time traffic through Bandipur National Park that connects Kerala with the cities of Mysore and Bangalore.

- Kerala submitted that the alternative route goes through the Nagarhole Tiger Reserve in Karnataka and Tholpetty wildlife sanctuary in Kerala.
- It said that the the ban on night traffic through NH 212 issued by the District Magistrate was without any study or preparation.
- Mudumalai, Bandipur Tiger Reserves and Wayanad Wildlife sanctuary make one contiguous tiger territory and tigers move freely within this area. It is illogical and inappropriate to impose enhanced level of restriction only in one part of this tiger territory to protect tigers. Kerala argued that, if at all any restrictions of vehicular movement is to be done in wildlife areas, it should be done uniformly across the country under the relevant laws such as the Wildlife Protection Act and not under the Motor Vehicles Act.

Bandipur National Park:

- Bandipur National Park established in 1974 as a tiger reserve under Project Tiger, is a national park located in Karnataka, which is the state with the second highest tiger population in India. Along with adjacent Nagarhole National Park it is one of the premier Tiger Reserves in the country. It was once a private hunting reserve for the Maharaja of the Kingdom of Mysore but has now been upgraded to Bandipur Tiger Reserve.
- Bandipur is known for its wildlife and has many types of biomes, but dry deciduous forest is dominant. It is a part of Nilgiri Biosphere Reserve.
- The park has a variety of biomes including dry deciduous forests, moist deciduous forests and shrublands. The wide range of habitats help support a diverse range of organisms. The park is flanked by the Kabini river in the north and the Moyar river in the south.
- The Nugu river runs through the park. The highest point in the park is on a hill called Himavad Gopalswamy Betta.

14. Pesticide Free Kinnow Crop

Why in News?

- The Punjab Agri Export Corporation recently launched the ‘Punjab Kinnow’ brand at the kinnow festival in Abohar. This brand of kinnow, which is considered the ‘king fruit’ of Punjab, is also said to be “pesticide-free”.

Highlights:

- However, the kinnow is a year-long crop, often attacked by pests including mites at various stages, requiring several sprays of insecticide.

- Branding the crop has been done along the lines of the region-specific branding of several other fruits like the ‘Nagpur orange’ (which even has a GI tag) and ‘Australian kiwi’. Punjab being the largest producer of kinnow in the country, such branding will attract more consumers. Punjab’s kinnow has several nutritive values including limonin, which helps control cholesterol level and has anti-cancer properties, which the consumer should be informed.

Pest Attacks and Diseases:

- Over a dozen types of insects and pests attack the kinnow plant’s leaves, stem and fruit through the year. The Citrus Psylla attacks the crop almost throughout the year till a month before harvesting in March-April, July-August and September-October.
- The Citrus Leaf Minor attacks the crop from April to mid-June and in the first week of November, a month before harvesting.
- The Citrus Whitefly and blackfly attack in April-May and September-October, while Black Citrus and Black Citrus Aphids are active August to October.
- The Citrus Thrips has been known to prey on the plant from March to April, and the Citrus mite in May-June, August- September.
- The kinnow plant is also vulnerable to the Fruit Sucking bug, Mealybugs, Fruit Flies, Lemon butterfly etc. There are around 10 diseases like foot rot of plant, Fruit Drop, Citrus Canker, Citrus Scab, Sooty Mould Ring Spot, Greening, Citrus Tristeza, Die Back, etc. which attack both plant and fruit.
- Fewer pests attack the kinnow plant so there is hardly any use of pesticide on it and it can be called ‘pesticide free’, but the attack of insects including thrips and whitefly are quite frequent, which need to be controlled through controlled use of insecticides. Because of these natural climatic conditions farmers are not required to spray any insecticides from November to mid-February and this makes kinnow safe for consumption.

15. International protection for Great Indian Bustard, Bengal Florican and Asian

Elephant

Why in News?

- India’s proposal to include the Great Indian Bustard, the Asian Elephant and the Bengal Florican in Appendix I of UN Convention on Migratory Species was unanimously accepted at the on-going thirteenth Conference of the Parties to the Convention on Migratory Species (CMS) in Gandhinagar.

UN Convention on Migratory Species:

- Adopted in 1979 and entered into force in 1983, the Convention on Migratory Species (CMS) aims to build and strengthen global conservation efforts for migratory species in the air, on land, and in the seas.
- CMS, also known as the Bonn Convention, is an international and intergovernmental treaty backed by the United Nations Environmental Programme.
- Its current membership is 116 nations who work to conserve migratory species throughout their range and across national borders.
- The Convention divides species into two appendices:
 - ✓ **Appendix I:** Lists species that are threatened with extinction.
 - ✓ **Appendix II:** Species that need or would benefit greatly from international cooperative conservation efforts.
- Parties work to conserve the listed species and their habitats through formal Agreements, and less formal Memorandums of Understanding (MOU).
- The Agreements and MOUs work to incorporate all Range states of the target species, and not just parties to the convention.

Asian Elephant:

- The Government of India has declared Indian elephant as a National Heritage Animal.
- The Indian elephant is also provided the highest degree of legal protection by listing it in Schedule I of the Wildlife (Protection) Act, 1972.
- Placing the Indian elephant in Schedule I of the CMS Convention will fulfil the natural urge of migration of the Indian elephant across India's borders and back safely and thereby promote conservation of this endangered species for the future generations.
- Intermixing of smaller sub populations in Nepal, Bangladesh, Bhutan and Myanmar will widen the gene base of these populations.
- It will also help to reduce human elephant conflicts in many parts of its migratory routes.
- Mainland Asian elephants/Indian elephants migrate over long distances in search of food and shelter, across states and countries. Some elephants are resident while others migrate regularly in annual migration cycles.
- The proportion of resident and migratory populations depends upon size of regional populations, as well as on extent, degradation and fragmentation of their habitats.
- The challenges confronting Asian elephant conservation in most elephant Range State are:
 - ✓ Habitat loss and fragmentation

- ✓ Human-elephant conflict
- ✓ Poaching
- ✓ Illegal trade of elephants

Great Indian Bustard:

- The Great Indian Bustard, an iconic, critically endangered and conservation dependent species, exhibits transboundary movements, and its migration exposes it to threats such as hunting in boundary area of Pakistan-India and power-line collisions in India.
- Inclusion of the species in Appendix I of CMS will aide in transboundary conservation efforts facilitated by International conservation bodies and existing international laws and agreement.
- The species has a small population of about 100–150 individuals that is largely restricted to the Thar Desert in Rajasthan, India.
- The species has disappeared from 90% of this range; their population has reduced by 90% within 50 years (six generations); and their threats are expected to increase in future.

Bengal Florican:

- The Bengal Florican, an iconic, critically endangered species of topmost conservation priority, exhibits transboundary movements, and its migration exposes it to threats such as land use changes, collision with power transmission line at boundary area of India-Nepal and probable power-line collisions.
- Inclusion of the species in Appendix I of CMS will aid in transboundary conservation efforts facilitated by International conservation bodies and existing international laws and agreement.
- Populations have declined as a result of habitat loss, hunting and the species no longer breeds outside Protected Areas in the Indian subcontinent, except in a few areas of Assam.

16. Hypoxia Adaptable Himalayan Wolves

Why in News?

- Himalayan wolves, also called as Tibetan wolves, which live at more than 4,000 metres altitudes are genetically distinct from grey wolves, according to a study.

Highlights:

- The study based on mitochondrial DNA supports an early divergence for the Himalayan wolves, making them the sister taxon to the grey wolves.

- The nuclear genome markers analysed also suggests differences between Himalayan wolves and grey wolves.
- Living at such high altitudes, these wolves have genetically adapted themselves to live in low oxygen (hypoxic) conditions. While effective oxygen availability at sea level is nearly 22%, at 4,000 metres altitude, the effective oxygen availability is nearly half, 12.7%.
- The researchers collected 280 wolf faeces from across the Tibetan Plateau of China, Kyrgyzstan and Tajikistan and studied the mitochondrial DNA. A subset of 110 samples was genotyped too. The genetic analysis revealed a clear divergence of Himalayan wolves and marked them as separate breed.
- Unlike the grey wolves that inhabit the lower elevations the Himalayan wolves showed clear hypoxia adaptation. The admixed wolves had a mixture of genes belonging to Himalayan wolves and grey wolves but always carried the Himalayan wolf hypoxia adaptation.
- The specialised genes for hypoxia adaptation allowed the animals to overcome the lack of oxygen at such high altitudes. Such adaptations are seen in dogs and humans to mitigate the deleterious effects of free radicals that are produced in response to low oxygen availability. While the precise genetic mechanism that facilitates humans to live in hypoxic conditions remain poorly understood, interbreeding of wolves and dogs is how the dogs might have acquired high-altitude adaptation.

17. Jalyukta Shivar Abhiyan

Why in News?

- Jalyukta Shivar, the flagship water conservation project launched by the earlier government has been officially scrapped by the present Maha government.

Jalyukta Shivar:

Launched in December 2014 after Maharashtra experienced consecutive droughts, the project aimed at rolling out measures that could potentially mitigate water scarcity in the most drought-prone villages in a systematic manner. Nearly 52 per cent of the state's geographical area is prone to drought, either naturally or due to poor rainfall.

- This includes Marathwada and adjoining areas of Madhya Maharashtra and large parts of Vidarbha.
- The project targeted strengthening and streamlining existing water resources like canals, bunds and ponds by arresting maximum run-off rainwater during monsoon.

- Tasks to widen and deepen natural water streams and connect them to nearby water storage facilities like earthen or concrete check-dams were proposed.
- In the first phase, planned during 2015 – 2019, Jalyukta Shivar envisaged making 5,000 villages drought-free, every year.
- During its proposed tenure, the government eyed at making 25,000 drought-prone villages water-sufficient.

Significance:

- While the exact number of villages that were declared drought-free remains unknown, the programme attempted to bring water stress down in a majority of the most water-scarce villages in the state.
- In January last year, then CM had announced that the scheme had transformed 16,000 drought-prone villages of Maharashtra.

Water conservation in near future in the State:

- Geologists and hydrologists, who worked on implementing the project, shared similar views and hailed Jalyukta Shivar.
- This was mainly due to the interventions undertaken in the existing water reserves, planned de-silting activities, among many others.
- However, experts agreed that the scheme was not appropriately implemented.
- Now with Jalyukta Shivar no longer in existence, focused efforts of the past five years, in most likelihood, will go down the drain if a similar scheme is introduced.
- With rainfall variations getting more pronounced, in addition to depleting groundwater reserves, the state will need concrete interventions to tackle future water requirements.

18. Monsoon in Sunderbans to Get Longer

Why in News?

- The monsoon in Sunderbans is likely to last longer and get more intense, according to a fact sheet titled The Sunderbans and Climate Change, which was made public during the ongoing Convention on the Conservation of Migratory Species of Wild Animals.

Highlights:

- While the fact sheet puts the rise in the sea level at 3.2 mm per year currently, it states that an estimated rise of 28 cm above the sea levels registered in the year 2000 would result in a 96 % decline of the habitat of the Bengal tiger in Bangladesh.

- Climate specialists have predicted that as climate change progresses, monsoon seasons in the Sundarbans will become longer and more intense.
- Conversely, drought conditions will also become more pronounced, presenting further challenges for agricultural producers in particular and ecosystems in general.
- The document highlights the need for "long term coastal planning to ensure that these critically important intertidal habitats with their unique flora and fauna and local inhabitants have a space to retreat inland.
- The paper also points out that the habitat of the Bengal tiger (*Panthera tigris tigris*) in the Sunderbans is also affected by the storm due to a decline in the availability of prey. The fact sheet points out that the Sunderbans is also highly susceptible to flooding. Due to this, any swelling of ocean water is going to dramatically affect the area.
- Apart from the frequent storms and the rise of sea level, another concern is the rise of salinity both in water and soil.
- Excess levels of soil salinity can be incredibly damaging to ecosystems as salts can accumulate in the soil and hinder plant growth. It also threatens the health of freshwater aquatic life such as fish and giant prawns.

Sundarbans:

- The Sundarbans is a mangrove area in the delta formed by the confluence of Ganges, Brahmaputra and Meghna Rivers in the Bay of Bengal.
- It spans from the Hooghly River in India's state of West Bengal to the Baleswar River in Bangladesh.
- Four protected areas in the Sundarbans are enlisted as UNESCO World Heritage Sites, viz Sundarbans National Park, Sundarbans West, Sundarbans South and Sundarbans East Wildlife Sanctuaries.
- The forests, together with the Sundarbans mangroves, are important habitats for the Bengal tiger (*Panthera tigris tigris*).
- The forest also provides habitat for small wild cats such as the jungle cat (*Felis chaus*), fishing cat (*Prionailurus viverrinus*), and leopard cat (*P. bengalensis*).
- The Bangladeshi portion of Sundarbans was designated a Ramsar site on 21 May 1992, and the Indian portion on 30 January 2019.

19. Yongle Blue Hole (YBH)

Why in News?

- Carbon more than 8,000 years old has been found inside the world's deepest blue hole — the Yongle Blue Hole (YBH).

Yongle Blue Hole (YBH):

- The deepest known marine cavern is the Yongle blue hole, which measures roughly 300 metres from top to bottom.
- Blue holes are marine caverns filled with water and are formed following dissolution of carbonate rocks, usually under the influence of global sea level rise or fall.
- Its waters are mostly isolated from the surrounding ocean and receive little fresh water from rainfall, making it a rare spot to study the chemistry of oxygen-deprived marine ecosystems.
- What distinguishes them from other aquatic caverns is that they are isolated from the ocean and don't receive fresh rainwater.
- They are generally circular, steep-walled and open to surface.



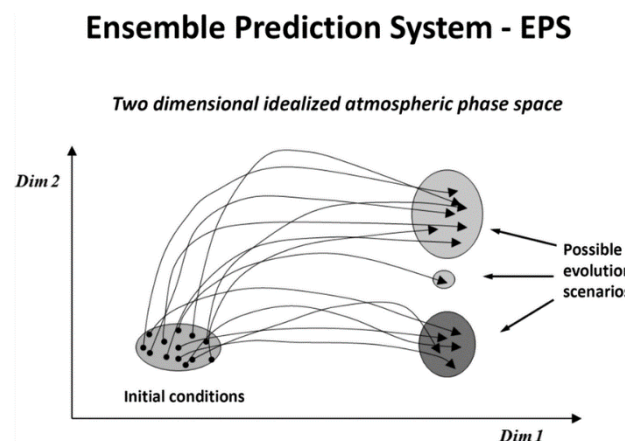
Significance:

- YBH has a depth of 300 metres, far deeper than the previously recorded deepest blue hole, Dean's Blue Hole in Bahamas, which had a depth of 202 metres.
- However, like most blue holes, it is anoxic i.e. depleted of dissolved oxygen below a certain depth. This anaerobic environment is unfavorable for most sea life.
- Such anoxic ecosystems are considered a critical environmental and ecological issue as they have led to several mass extinctions.
- Concentrations of carbon, usually found in deep marine holes like YBH, provide a natural laboratory to study carbon cycling and potential mechanisms controlling it in the marine ecosystem.
- The transition from aerobic to anaerobic environment adversely affects the biogeochemistry of the ocean.

20. Ensemble Methods in Modelling and Data Assimilation

Why in News?

- A three-day international conference on “Ensemble Methods in Modelling and Data Assimilation (EMMDA)” has been organised by National Centre for Medium Range Weather Forecasting (NCMRWF), Ministry of Earth Sciences (MoES) from February 24, 2020 at Noida, India.



Objective:

- To provide a platform for discussions and deliberations on the present status, future prospects and optimum use of Ensemble Prediction System (EPS).

Ensemble Prediction System:

- Though remarkable success has been achieved in improving forecast by prediction systems and adopting latest data assimilation techniques, but some amount of uncertainty is associated with numerical weather prediction.
- In order to quantify the forecast uncertainty, leading Weather forecasting centres of the world including India have developed ‘Ensemble Prediction System’ (EPS) which provides probabilistic forecasting of weather. In an EPS, a number of similar models, called the ensemble members, are run from slightly different initial conditions.
- It requires high computational resources and in turn provides the flow dependent forecast uncertainty in terms of probability.
- The probabilistic forecasts help the end users in making decisions and plan their actions suitably.
- The forecasts from high resolution global and regional EPS provide more accurate probabilistic forecasts of extreme weather events and help the planners and administrators in taking timely actions.

- India has recently operationally implemented two global EPS which have highest resolution in the world and also a regional EPS of horizontal resolution 4 km which covers the Indian region.
- A well-coordinated collaborative research and development work between national and international centres are further required for progressively improving the skill of EPS.

Themes:

- The major themes of the conference are:
 - ✓ Ensemble methods in Global Weather Prediction
 - ✓ Ensemble methods in Data Assimilation
 - ✓ Ensemble methods in Monthly and Seasonal Forecasting
 - ✓ Convection Permitting Ensemble Prediction Systems
 - ✓ Verification of Ensemble weather forecasts
 - ✓ Applications of Ensemble weather forecasts.
- Leading International experts and scientists from UK, USA, South Korea, Australia, New Zealand, etc. will present papers along with distinguished Indian scientists from different lead organizations on latest developments in the field of ensemble data assimilation and modelling.
- About twenty young scientists and researchers will present their research outcomes. Besides them about 100 participants which include forecasters, stake holder from various sectors and young research scholars will attend this conference.
- The latest techniques used in Data Assimilation, Ensemble Methods, and use of Probabilistic Forecasts for developing new applications from Ensemble Products will be discussed.
- The discussions will lead to development of newer algorithms and will be useful for societal applications related to weather/climate.

21.State of India's Birds Report 2020

Why in News?

- The State of India's Birds 2020 Report was recently released at the 13th COP Convention on the Conservation of Migratory Species of Wild Animals, Gandhinagar, Gujarat.

Highlights:

- The report has been prepared with the help of a massive database of more than 10 million observations uploaded by 15,000 birdwatchers on the 'e-bird' platform.

- It is India's first of its kind report that highlights observations by birdwatchers form the basis of the analyses.
- The project was started in May 2018 as a means to collect the actual data of birds in India.
- The final report was released on February 17, 2020, at 13th COP to the convention on migratory species held in Gujarat.

Report:

- The report suggests that about 867 birds were assessed which made it clear that almost all the species are declining.
- The report categorises 101 species as of High Conservation Concern, 59 based on their range size and abundance trends, and an additional 42 based on their IUCN Red List status.
- According to the report, India has witnessed a big decline in migratory shorebirds, raptors, Indian Vulture, Large-billed Lea Warbler, Curlew Sandpiper, Richard's Pipit and While-rumped Vulture.
- The report also highlights that some species have increased in numbers such as Glossy Ibis, Rosy Starling, Ashy Prinia, and Feral Pigeon.
- Birds were divided into different categories – 101 birds as a high concern, 319 birds as moderate concern and 442 birds as low concern species.

Growth of Indian Peacock:

- The State of India's Birds 2020 Report said that numbers of Indian Peacock have increased.
- The report also highlights that good growth has been observed in Indian Peacock's population.
- IUCN: Least concern

Status of House Sparrow:

- The report said that the number of India's domestic or house sparrow has decreased in large cities but almost stable overall.
- House Sparrow is a commonly found bird across the country. It can be seen in small towns, villages also in markets.
- Its population is currently stable but more attention is required.
- The report said that there are certain reasons for decreasing numbers of house sparrows such as lack of suitable nesting sites and lack of insect (a key part of sparrow's diet) population.

Suggestions:

- The report suggests that it is important to promote collaborations between public initiatives and researchers.
- It also suggests that the government should support the monitoring and conservation efforts by citizens and researchers.
- The report also suggests that there should be a dedicated fund for high concern species so that scientists and researchers can save those birds.



6. INTERNATIONAL RELATIONS

1. New shipping laws for Arctic Region

Why in News?

- Environmental activists have called for a ban on the use of new low sulphur marine fuel in the Arctic region. They have cited new research which shows that blends of very low-sulfur fuel oil (VLSFO) contribute to highly polluting black carbon emissions in the environment.

Highlights:

- Recently, International Maritime Organization (IMO), the shipping agency of the United Nations, issued new rules aiming to reduce sulphur emissions, due to which ships are opting for newer blends of fuels.
- The IMO has banned ships from using fuels with a sulphur content above 0.5 per cent, compared with 3.5 per cent previously. Sulphur oxides (SOx), which are formed after combustion in engines, are known to cause respiratory symptoms and lung disease, while also leading to acid rain.
- The new regulations, called IMO 2020, have been regarded as the biggest shake up for the oil and shipping industries in decades. It affects more than 50,000 merchant ships worldwide.
- The new limits are monitored and enforced by national authorities of countries that are members of the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI.
- Only ships fitted with sulphur-cleaning devices, known as scrubbers, are allowed to continue burning high-sulphur fuel. Alternatively, they can opt for cleaner fuels, such as marine gasoil (MGO) and very low-sulfur fuel oil (VLSFO).
- Many are reportedly choosing VLSFO, which has better calorific properties and other technical advantages. There are complaints against VLSFO as well, as testing companies have claimed that high sediment formation due to the fuel's use could damage vessel engines and also release Black Carbon.
- Black carbon, which is produced due to the incomplete combustion of carbon-based fuels, contributes to climate change. Increase in black carbon emissions would accelerate the melting of Arctic sea ice and impact the earth's climate.

International Maritime Organisation (IMO):

- IMO is a specialised agency of the United Nations responsible for regulating shipping.

- The IMO was established following agreement at a UN conference held in Geneva in 1948 and the IMO came into existence ten years later.
- Headquartered in London, United Kingdom, the IMO currently has 174 member states and three associate members.
- The IMO's primary purpose is to develop and maintain a comprehensive regulatory framework for shipping and its remit today includes safety, environmental concerns, legal matters, technical co-operation, maritime security and the efficiency of shipping.
- IMO is governed by an assembly of members and is financially administered by a council of members elected from the assembly.

MARPOL 73/78 (Marine Pollution 1973- 1978):

- MARPOL is one of the most important international marine environmental conventions.
- It was developed by the International Maritime Organization with an objective to minimize pollution of the oceans and seas, including dumping, oil and air pollution.
- All ships flagged under countries that are signatories to MARPOL are subject to its requirements, regardless of where they sail and member nations are responsible for vessels registered on their national ship registry.

Annex VI:

- It introduces requirements to regulate the air pollution being emitted by ships, including the emission of ozone-depleting substances, Nitrogen Oxides (NO_x), Sulphur Oxides (SO_x), Volatile Organic Compounds (VOCs) and shipboard incineration.
- It also establishes requirements for reception facilities for wastes from exhaust gas cleaning systems, incinerators, fuel oil quality, for off-shore platforms and drilling rigs and for the establishment of SO_x Emission Control Areas.

2. India and Maldives sign four MoUs

Why in News?

- India and Maldives signed five memorandum of understanding (MoUs) on February 02, 2020.
- The objective of this MoU is to establish the Addu tourism zone on the five islands of Addu Atoll in the Maldives. It will cost twenty-four million ninety thousand dollars.

Addu Tourism Zone:

- Addu is one of the most beautiful sites of Maldives' 26 coral atolls. It comprises more than two dozens of Maldives' 1192 islands.

- Addu is also an important site for tourism because it represents the southernmost point of South Asia. About 10% of actual Maldives residents are living here with unique culture and dialect.
- India is expanding its tourism and infrastructure development limits through off-shore development works. Addu Tourism Zone will increase India's capacity for infrastructure building. Addu Tourism Zone will bring national and international tourists and diplomats that will boost India's and Maldives' tourism sector.
- Indian citizens are second among people coming to the Maldives to visit from all over the world. According to the official figures released by Maldives Tourism Minister Ali Waheed, 82,140 Indian tourists went to visit the Maldives in the first six months of 2019.

India-Maldives Relations:

- India-Maldives relations refer to a long time bilateral relations between both countries.
- This relationship has been friendly and close in strategic, economic and military cooperation. Almost all the Prime Ministers of India have visited Maldives during their tenure.
- India and Maldives began bilateral relations soon after the independence of Maldives from British rule in 1965. India was one of the first countries to recognize the Maldives as an independent nation.
- India established its diplomatic mission in Male in 1972, the capital of Maldives.

3. Global Go to Think-Tank Index

Why in News?

- Centre for Science and Environment (CSE) was placed No. 16 among 2019's 'top environment policy think tanks' of the world in Global Go To Think Tank Index.

Think-Tank Index:

- The Index is released by University of Pennsylvania each year since 2008.
- It evaluates public-policy research analysis and engagement organisations that generate policy-oriented research, analysis, and advice on domestic and international issues.
- It claims to enable policy makers and the public to make informed decisions on public policy. The 2020 report raised some critical threats and opportunities that think tanks across the globe face. It called upon such organisations to develop national, regional, and global partnerships and create new, innovative platforms to deliver for an ever-expanding audience of citizens, policy makers and businesses.

India's Performance:

- CSE climbed up two notches in the 14th version of the report.
- The organisation also moved up three places among 'best independent think tanks' to be at No.123 in the world and sixth among Indian think tanks.
- Globally, it was ranked 41 of 60 organisations committed to energy and resource policy. It remained at No.58 among organisations working on science and technology policy in the world – fifth in India.

CSE as Forerunner:

- CSE was named the 'national climate leader' from India for 2019 in the first National Climate Leader Awards published in the Global Spotlight Report #22 by Climate Scorecard.
- CSE also received the prestigious Indira Gandhi Prize for Peace, Disarmament and Development for 2018 in 2019 for 'pioneering work on environment and sustainable development'.
- CSE also featured in four other rankings in the report: 'top water security think tanks'; 'top energy and resource policy think tanks'; 'top science and technology policy think tanks' and 'best independent think tanks'.
- It also ranked 18 among 78 global think tanks for its work on 'water security' – second in India after Ashoka Trust for Research in Ecology and the Environment.

4. Bhutan ends Free Entry for Indian Tourists

Why in News?

- The government of Bhutan has decided to levy a daily RS.1,200 (\$17) fee for regional tourists from India, the Maldives and Bangladesh, beginning July 2020.

Highlights:

- The fee, called a Sustainable Development Fee (SDF), is meant to help the government deal with burgeoning numbers in tourist traffic, which it is seeking to regulate through a new tourism policy.
- The decision was passed by the National Assembly as a 'Tourism Levy and Exemption Bill of Bhutan', 2020.
- The SDF is considerably lower than the \$65 charged to other foreign tourists, who are also charged a compulsory flat "cover charge" of \$250 per day.

- Indians mainly travel to the more developed western region of Bhutan. In a move to promote tourism in Bhutan's eastern region as well, the government has decided to drop SDF charges for tourists visiting 11 of 20 total districts that fall in the east from Trongsa to Trashigang.
- Regional tour operators, especially from West Bengal have expressed concerns that the SDF will have dampening effect on numbers, and impact the heavy rush during the October.
- India's hesitation also comes as the new SDF, while a seemingly small amount compared to the fees charged to other nationalities, could be seen as a way of making Indian tourists feel unwelcome.
- In the past year, Bhutanese newspapers have often complained about Indian tourists who don't pay heed to local customs and picnickers who litter the country's pristine environment.
- In 2018, of the 2,74,000 tourists visiting Bhutan, the council estimated that about 2,00,000 were from the region, of which about 1,80,000 were from India.

5. Lucknow Declaration

Why in News?

- The first India-Africa Defence Ministers' Conclave held in Lucknow has adopted the Lucknow Declaration.

The Declaration:

- Acknowledges contribution of Indian defence forces in humanitarian assistance and disaster relief operations in Africa.
- It appreciates initiation of Africa India Field Training Exercises with the first ever AFINDEX in March 2019 and agree that it will further strengthen cooperation in defence preparedness and security.
- The vision is to achieve 'a conflict-free Africa, prevent genocide, make peace a reality for all and rid the continent of wars, violent conflicts, human rights violations, and humanitarian disasters.
- It call for deeper cooperation in the domain of defence industry including through investment, joint ventures in defence equipment software, digital defence, research & development etc.

- It recognizes the common security challenges such as terrorism and extremism, piracy, organised crime including human trafficking, drug trafficking, weapon smuggling and others.
- The members endorsed initiatives such as African Peace and Security Architecture (APSA), Silence The Guns in Africa and Agenda 2063.
- It calls for strengthening the UN Counter-Terrorism mechanisms and to ensure strict compliance with the UN Security Council sanctions regime on terrorism.
- It urged the international community to envisage the adoption of Comprehensive Convention on International Terrorism in the UNGA.
- The members recognized the importance of the oceans and seas to the livelihoods of our peoples and that Maritime security is a pre-requisite for the development of Blue or Ocean economy.
- It sought to increase cooperation in securing sea lines of communication, preventing maritime crimes, disaster, piracy, illegal, unregulated and unreported fishing through sharing of information and surveillance.

6. 13th Conference of Parties (COP) of the Convention on the Conservation of Migratory Species of Wild Animals (CMS)

Why in News?

- India will host the 13th Conference of Parties (COP) of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) at Gandhinagar, Gujarat in February 2020.

Highlights:

- As the host, India shall be designated the President for the next three years.
- The Government of India is a signatory to the Convention on Conservation of Migratory wild Animals (CMS) since 1983.
- The theme of CMS COP 13 in India is, “Migratory species connect the planet and we welcome them home”.
- The CMS COP 13 logo is inspired by ‘Kolam’, a traditional art form from southern India. In the logo, Kolam art form is used to depict key migratory species in India like Amur falcon, humpback whale and marine turtles.
- The mascot for CMS COP13, “Gibi – The Great Indian Bustard” is a critically endangered species which has been accorded the highest protection status under the Wildlife Protection Act, 1972.

Great Indian Bustard:

- The great Indian bustard (*Ardeotis nigriceps*) or Indian bustard is a bustard found on the Indian subcontinent.
- It is a large bird with a horizontal body and long bare legs, giving it an ostrich like appearance.
- It is among the heaviest of the flying birds.
- These birds are often found associated in the same habitat as the blackbuck.
- The Indian subcontinent is also part of the major bird flyway network, i.e, the Central Asian Flyway (CAF) that covers areas between the Arctic and Indian Oceans, and covers at least 279 populations of 182 migratory water bird species, including 29 globally threatened species.

Convention on Conservation of Migratory wild Animals (CMS):

- As an environmental treaty of the United Nations, CMS provides a global platform for the conservation and sustainable use of migratory animals and their habitats.
- CMS brings together the States through which migratory animals pass, the Range States, and lays the legal foundation for internationally coordinated conservation measures throughout a migratory range.
- It is the only global convention specializing in the conservation of migratory species, their habitats and migration routes.
- Migratory species threatened with extinction are listed on Appendix I of the Convention.
- CMS Parties strive towards strictly protecting these animals, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them.
- The Convention entered into force on 1 November 1983.
- Its Secretariat is in Bonn, Germany.

7. Naming a Disease by WHO

Why in News?

- The World Health Organization officially announced COVID-19 as the name for the disease caused by the novel coronavirus.
- This comes more than 40 days after WHO was alerted by China about a cluster of pneumonia-like cases seen in the city of Wuhan in Hubei province.

- The "co" stands for "corona", "vi" for "virus" and "d" for "disease", while "19" was for the year, as the outbreak was first identified on December 31.

Highlights:

- The WHO had to come up the name in line with the 2015 guidelines between the global agency, the World Organisation for Animal Health and the Food and Agriculture Organization.
- The Coronavirus Study Group of the International Committee on Taxonomy of Viruses, which had assessed the novelty of the human pathogen, has named the virus as “Severe acute respiratory syndrome coronavirus 2”, or “SARS-CoV-2”.
- The Coronavirus Study Group is responsible for developing the official classification of viruses and taxa naming of the Coronaviridae family.

Reason for Naming:

- The name has been chosen to avoid references to a specific geographical location, animal species or group of people in line with international recommendations for naming aimed at preventing stigmatisation.
- WHO had earlier given the virus the temporary name of "2019-nCoV acute respiratory disease" and China's National Health Commission was temporarily calling it "novel coronavirus pneumonia" or NCP.
- Under a set of guidelines issued in 2015, WHO advises against using place names such as Ebola and Zika, where those diseases were first identified and which are now inevitably linked to them in the public mind.
- More general names such as "Middle East Respiratory Syndrome" or "Spanish flu" are also now avoided as they can stigmatise entire regions or ethnic groups.
- WHO also notes that using animal species in the name can create confusion, such as in 2009 when H1N1 was popularly referred to as "swine flu". This had a major impact on the pork industry even though the disease was being spread by people rather than pigs.

Significance of Naming:

- The urgency to assign a name to the disease is to prevent the use of other names that can be “inaccurate or stigmatising”. People outside the scientific community tend to call a new disease by common names.
- But once the name gets “established in common usage through the Internet and social media, they are difficult to change, even if an inappropriate name is being used.

- Therefore, it is important that whoever first reports on a newly identified human disease uses an appropriate name that is scientifically sound and socially acceptable.

Method of Naming:

- The WHO identified the best practices to name new human diseases in consultation and collaboration with the World Organisation for Animal Health (OIE) and the Food and Agriculture Organization of the United Nations (FAO).
- The main aim behind this exercise was to “minimise unnecessary negative impact of disease names on trade, travel, tourism or animal welfare, and avoid causing offence to any cultural, social, national, regional, professional or ethnic groups”.
- The name of a new disease should consist of a combination of terms. These terms consist of a generic descriptive term based on clinical symptoms (respiratory), physiological processes (diarrhoea), and anatomical or pathological references (cardic).
- It can refer to specific descriptive terms such as those who are afflicted (infant, juvenile, and maternal), seasonality (summer, winter) and severity (mild, severe).
- The name can also include other factual elements such as the environment (ocean, river), causal pathogen (coronavirus) and the year the new disease is first detected with or without mentioning the month.
- The WHO has also listed out the terms that should be avoided while naming a new disease. This includes, geographic locations, people’s names, species of animal or food, references to culture, population, industry or occupation, and terms that incite undue fear.
- A couple of diseases carry the name of the person who first identified the disease. Chagas disease is named after the Brazilian physician Carlos Chagas, who discovered the disease in 1909.
- Some diseases carry the name of animals, bird flu (H5N1) and swine flu (H1N1). The 2009 H1N1 pandemic was commonly referred to as swine flu. It is important to note that the 2009 pandemic virus was not completely derived from swine.

8. ‘2 Billion Kilometers to Safety’ Campaign

Why in News?

- The UN Refugee Agency UNHCR has announced a new global campaign urging people worldwide to cover the total distance travelled by refugees each year – 2 billion kilometers – by running, jogging or walking.

‘2 Billion Kilometers to Safety’ Campaign:

- The “2 Billion Kilometers to Safety” campaign vies to encourage people to support refugees by championing individual acts of solidarity.
- The goal is to acknowledge the resilience and strength of refugees.
- It calls on the public to show their solidarity with refugees by running, walking or cycling to collectively cover two billion kilometers.
- Participants can use their fitness apps or the campaign website to log the kilometers and contribute to the global total.

Distance covered by Refugees:

- UNHCR traced the journeys of refugees around the world and calculated that, collectively, people forced to flee travel approximately two billion kilometers every year to reach the first point of safety. This is roughly the distance that separates Earth from somewhere between the planets Saturn and Uranus.
- According to UNHCR estimates, Syrian refugees travelled over 240 kilometers each to reach Turkey. South Sudanese refugees travelled more than 640 kilometers to reach Kenya. Rohingya refugees from Myanmar travelled approximately 80 kilometers to reach Bangladesh.

9. India – Norway Joint Statement

Why in News?

- India and Norway issued a joint statement on climate and environment during the 13th Conference of Parties (COP) of the Convention on the Conservation of Migratory Species of Wild Animals (CMS).

Highlights:

- India and Norway agreed to jointly tackle concerns related to oceans, environment and climate matters. Ministers of both countries expressed interest to continue and strengthen the mutually beneficial cooperation on environment and climate between the two countries, including on ocean affairs.
- Both sides agreed to take up actions that target climate change and air pollution.
- The ministers recognized that the Kigali Amendment to the Montreal Protocol for phasing down the use of Hydrofluorocarbons (HFCs) could prevent up to 0.4 degree C of warming by end of the century.

- The Montreal Protocol on Substances that Deplete the Ozone Layer (a protocol to the Vienna Convention for the Protection of the Ozone Layer) is an international treaty designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion.
- The Kigali Agreement is an amendment to the Montreal Protocol. As per this arrangement, countries that have signed it are supposed to decrease the manufacture and use of Hydrofluorocarbons (HFCs) by approximately 80-85% from their respective standards, till 2045. This phase down is supposed to capture the global average temperature rise up to 0.5 degree C by 2100.
- The ministers reiterated the importance of oceans in meeting the Sustainable Development Goals (SDGs). They were particularly satisfied that Norway and India will sign a Letter of Intent on integrated ocean management including sustainable Blue Economy initiatives. Know more about the Blue Revolution.
- They welcomed the cooperation between India and Norway on the implementation of the Stockholm Convention on Persistent Organic Pollutants and on the minimisation of discharge of marine litter.
- The Stockholm Convention on Persistent Organic Pollutants is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.
- It was adopted by the Conference of Plenipotentiaries in May 2001 in Stockholm, Sweden. The Convention entered into force in May 2004.
- India ratified this Convention in 2006 and it entered into force for India in 2006.
- The Ministers emphasized a shared understanding of the global and urgent nature of marine plastic litter and microplastics and underlined that this issue cannot be solved by any one country alone. They are committed to supporting global action to address plastic pollution and exploring the feasibility of establishing a new global agreement on plastic pollution.
- **They also discussed the conservation of migratory species of Wild Animals.**

10. Indian Scientific Expedition to the Southern Ocean 2020

Why in News?

- On January, the South African oceanographic research vessel SA Agulhas set off from Port Louise in Mauritius, on a two-month Indian Scientific Expedition to the Southern Ocean 2020.
- On 14th Feb the vessel was at Prydz Bay, in the coastal waters of “Bharati”, India’s third station in Antarctica.

Highlights:

- On board the vessel are 34 scientific staff from India, apart from technical hands, seamen and a chef who are all from South Africa.
- This is the 11th expedition of an Indian mission to the Southern Ocean, or Antarctic Ocean. The first mission took place between January and March 2004.

Objectives:

- The 18-institution team, led by Dr Anoop Mahajan from the Indian Institute of Tropical Meteorology, Pune, are collecting air and water samples from around 60 stations along the cruise track.
- These will give valuable information on the state of the ocean and atmosphere in this remote environment and will help to understand its impacts on the climate
- A key objective of the mission is to quantify changes that are occurring and the impact of these changes on large-scale weather phenomenon, like the Indian monsoon, through tele-connection,
- Study mainly aims to understand the influence of the Southern Ocean across eco-system and atmospheric changes and how it affects the tropical climate and weather conditions

Main Objectives:

- Carbon dioxide is getting emitted into the atmosphere, and through atmospheric circulation goes to the Antarctic and polar regions.
- Since the temperature is very low there, these gases are getting absorbed and converted into dissolved inorganic carbon or organic carbon, and through water masses and circulation it is coming back to tropical regions. Since it is warmer in these areas, it re-enters the atmosphere
- It is this cycle that the mission will help understand better. “How much carbon dioxide is going to those regions, and how much is coming back. That is the main objective.”

Six Core Projects:

- Study hydrodynamics and biogeochemistry of the Indian Ocean sector of the Southern Ocean; involves sampling sea water at different depths. This will help understand the formation of Antarctic bottom water.
- Observations of trace gases in the atmosphere, such as halogens and dimethyl sulphur from the ocean to the atmosphere. Will help improve parameterisations that are used in global models.
- Study of organisms called coccolithophores that have existed in the oceans for several million years; their concentrations in sediments will create a picture of past climate.
- Investigate atmospheric aerosols and their optical and radiative properties. Continuous measurements will quantify impact on Earth's climate.
- Study the Southern Ocean's impact on Indian monsoons. Look for signs in sediment core taken from the bottom of the ocean.
- Dynamics of the food web in the Southern Ocean; important for safeguarding catch and planning sustainable fishing.

11. United Nations Permanent Forum on Indigenous Issues (UNPFII)

UNPFII:

- The United Nations Permanent Forum on Indigenous Issues (UNPFII) is a high-level advisory body to the Economic and Social Council.
- The Forum was established on 28 July 2000 with the mandate to deal with indigenous issues related to economic and social development, culture, the environment, education, health and human rights.
- The first meeting of the Permanent Forum was held in May 2002, with yearly sessions thereafter. The Forum usually meets for 10 days each year, at the UN Headquarters in New York.
- In addition to the six mandated areas (economic and social development, culture, the environment, education, health and human rights), each session is thematically focused on a specific issue.
- The Permanent Forum is one of three UN bodies that is mandated to deal specifically with indigenous peoples' issues. The others are the Expert Mechanism on the Rights of Indigenous Peoples and the Special Rapporteur on the rights of indigenous peoples.

The Permanent Forum:

- provides expert advice and recommendations on indigenous issues to the Council, as well as to programmes, funds and agencies of the United Nations, through ECOSOC;
- raises awareness and promotes the integration and coordination of activities related to indigenous issues within the UN system;
- prepares and disseminates information on indigenous issues;
- promotes respect for and full application of the provisions of the UN Declaration on the Rights of Indigenous Peoples and follow up the effectiveness of this Declaration (Art. 42 UNDRIP).

Functioning:

- The Permanent Forum's engagement and role in promoting indigenous peoples' rights are made possible through the Trust Fund on Indigenous Issues, which overall facilitates follow-up to the Forum's recommendations, awareness raising and outreach on indigenous issues as well as representation and participation of Permanent Forum members at international meetings of significance for its mandate.
- In addition, the trust fund provides support for the implementation of the United Nations Declaration on the Rights of Indigenous Peoples.
- DESA is charged with the overall management of the Trust Fund, which is placed under the Indigenous Peoples and Development Branch-Secretariat of the Permanent Forum on Indigenous Issues.

12. USA's Blue Dot Network

Why in News?

- During Trump's visit, India and the US will discuss the Blue Dot network, a new proposal to cover infrastructure and development projects across the region and other countries.

Highlights:

- The BDN was formally announced on 4th November, 2019 at the Indo-Pacific Business Forum in Bangkok, Thailand. It will be led by the US along with Japan and Australia.

BDN:

- The Blue Dot network is a multi-stakeholder initiative to bring together governments, the private sector and civil society to promote high-quality, trusted standards for global Infrastructure Development.

- The proposal, which is part of the US's Indo-Pacific strategy, is aimed at countering Chinese President Xi Jinping's ambitious One Belt One Road initiative.
- The initiative will evaluate projects on various parameters, including level of public consultation, transparency in funding, debt traps and basic environment norms.
- Projects that meet the norms will get a "blue dot", which will enable them to attract private funding and not have to depend on state-funding alone. Blue Dot will be about supporting alternatives to predatory lending by facilitating foreign investment in projects that come under this network.
- Under BRI, China's government and state-owned enterprises finance international projects by providing logistical support, from concrete and steel to workers and cash. This approach, however, has been labelled by some experts as "debt-trap diplomacy".
- The new Blue Dot Network is seen as part of the USA's strategy of trying to persuade developing countries in Asia-Pacific not rely on Chinese funds for infrastructure.

Belt and Road Initiative (BRI):

- BRI is an ambitious project that focuses on connectivity and cooperation among multiple countries spread across the continents of Asia, Africa, and Europe.
- The stated objectives are to construct a unified large market and make full use of both international and domestic markets, through cultural exchange and integration, to enhance mutual understanding and trust of member nations, ending up in an innovative pattern with capital inflows, talent pool, and technology database.
- The initial focus has been infrastructure investment, education, construction materials, railway and highway, automobile, real estate, power grid, and iron and steel.

7. INTERNAL SECURITY & DISASTER MANAGEMENT

1. Card details of Indians up for sale on Dark Net

Why in News?

- A Singapore-based cybersecurity company has revealed that about 98% of credit card and debit card details that is being sold on Dark Net is that of Indians.

Highlights:

- In October 2019, Group-IB Threat Intelligence team had detected the first such database of over 1.3 million credit and debit card records, mostly of Indian customers.
- The stash of 4,61,976 card payment details went up for sale on Joker's Stash, one of the most secretive portals on the dark net for buying such information.
- The company has also observed that the data is suspected to have been collected from phishing rackets, which are on the rise in India over the last few years.
- The underground market value of the database is estimated at more than \$4.2 million. The source of this batch currently remains unknown.
- In the current case is pertaining to so-called fullz, which have info on card number, expiration date, CVV/CVC, cardholder name as well as some extra personal info. Such type of data is likely to have been compromised online with the use of phishing, malware, or JS-sniffers.
- JavaScript or JS-Sniffers are programmes used for stealing credit and debit card information from e-commerce websites, and are among the latest concerns when it comes to cybersecurity and theft of sensitive card details.

Dark Net:

- Dark Net (or Darknet, synonymous with dark web) is the part of the Internet below the private deep web that uses custom software and hidden networks superimposed on the architecture of the Internet. Types of dark webs include friend-to-friend networks (usually used for file sharing with a peer-to-peer connection) and privacy networks such as Tor.

2. Exercise AJEYA WARRIOR – 2020

Why in News?

- The fifth edition of the Joint Military Exercise AJEYA WARRIOR – 2020 between India and the United Kingdom will be conducted at Salisbury Plains, United Kingdom in February 2020.

Exercise Ajeya Warrior:

- The joint military exercise will comprise of 120 soldiers each from the Indian and United Kingdom Army who would be sharing their experiences gained during conduct of various counter insurgency and counter terrorist operations in the past.
- The aim of this exercise is to conduct company level joint training with emphasis on counter terrorists operation in urban and semi-urban areas. Training on modern weapon systems, equipment and simulator training have also been planned.
- The exercise is conducted alternatively in the United Kingdom and India.
- The first edition of the exercise was conducted in 2013 at Belgaum, Karnataka.

3. BIMSTEC Disaster Management Exercise – 2020

Why in News?

- The Minister of State for Home Affairs inaugurated the Field Training Exercise of the 2nd BIMSTEC Disaster Management Exercise on flood rescue at the Ramachandi Beach, Puri (Odisha).

BIMSTEC Disaster Management Exercise:

- This exercise will help in sharing best practices and expertise, consolidating the disaster response, coordination and cooperation among BIMSTEC countries during disasters.
- The first such exercise was held in 2017.
- The exercise is hosted by the National Disaster Response Force (NDRF).
- The theme of this year's exercise is "A cultural heritage site that suffers severe damage in the earthquake and flooding or storm." Five member countries namely, India, Bangladesh, Myanmar, Sri Lanka, Myanmar and Nepal are participating in this three-day-long exercise.
- Two other member countries Bhutan and Thailand are not participating in the exercise this year. The purpose of the exercise is to test the existing emergency procedures for notification, preparedness and emergency response during a major natural disaster.

4. National Cyber Security strategy (NCSS) 2020

Why in News?

- The draft of National Cyber Security Strategy 2020, that envisages creating a secure cyberspace in India, is ready and will soon be sent to key ministries for comments before seeking the Cabinet approval.

Highlights:

- The vision of the strategy is to ensure a safe, secure, resilient, trusted and vibrant cyberspace for India's prosperity.
- The National Cyber Security Strategy 2020 is being prepared to fill the gaps and meet the target envisaged in National Cyber Security Policy 2020.
- India is actively walking towards a National Cyber Security Policy which is imperative for the goal of a USD 5 trillion economy.

Pillars of Strategy:

- ✓ Secure (The National Cyberspace)
- ✓ Strengthen (Structures, People, Processes, Capabilities)
- ✓ Synergise (Resources including Cooperation and Collaboration)

Need for NCSS 2020:

- India was one of the first few countries to propound a futuristic National Cyber Security Policy 2013(NCSP 2013). Since the adoption of NCSP 2013, the technologies, platforms, threats, services and aspirations have changed tremendously.
- However, Cyber intrusions and attacks have increased in scope and sophistication targeting sensitive personal and business data, and critical information infrastructure, with impact on national economy and security.
- Threats from organised cybercriminal groups, technological cold wars, and increasing state sponsored cyber-attacks have also emerged. Further, existing structures may need to be revamped or revitalised. Thus, a need exists for the formulation of a National Cyber Security Strategy 2020.

5. Bay of Bengal Offshore Sailing Expedition

Why in News?

- Indian Naval Sailing Vessels Mhadei and Tarini set sail for the Bay of Bengal Offshore Sailing Expedition from the Indian Naval Ocean Sailing Node at Goa.

BBSE:

- This would be the maiden major mixed crew sailing expedition of the Indian Navy with crew composition of five naval officers including two women officers in each boat.
- It would be covering a total distance of 6,100 Nautical miles each and will be at sea for 55 days.

- The prolonged voyage of nearly three months during this expedition would showcase harnessing of renewal energy namely wind energy to propel the boats.
- The expedition is also in pursuance of the GOI mission of 'Nari Shakti' providing opportunity to women officers at par with men.
- The sailing vessels as part of the expedition would make replenishment halts at ports of Phuket, Yangon, Chittagong and Colombo.

Indian Naval Sailing Vessels:

- Mhadei and Tarini inducted in the Indian Navy on 08 February 2009 and 18 February 2017 respectively have been the vessels of choice for the naval expeditions in various sailing expeditions, including three circumnavigations and thus have thousands of miles tucked under their belt.
- Mhadei has successfully completed two circumnavigations, three Cape to Rio trans-Atlantic races and several other expeditions around various continents.
- The vessel has covered in excess of 1,36,000 nautical miles.
- Tarini created history in 2017-18 when six Indian Naval women officers sailed the vessel on maiden circumnavigation voyage titled Navika Sagar Parikrama.
- She thereafter also participated in mixed crew Kochi to Seychelles sail training expedition during the 10th-anniversary celebration of the IONS.

6. Mishra Dhatu Nigam Limited (MIDHANI)

Why in News?

- Raksha Mantri Shri Rajnath Singh reviewed the performance of Mishra Dhatu Nigam Limited (MIDHANI) recently.

Highlights:

- The officials of the Defence Public Sector Undertaking (DPSU) briefed Raksha Mantri and senior officials of Department of Defence Production, Ministry of Defence about their ongoing projects and future plans.
- Defence Minister commended MIDHANI's contribution towards indigenisation in defence manufacturing and lauded the DPSU for diversifying its business to other sectors like space, energy and railways.
- Stressing that it can play a major role in making India self-reliant in special alloys and materials, he asked the officials to focus more on innovation and R&D.

- He said that the DPSU has a unique place among the Defence companies with its specialized product profile and customers, with a lot of potential for exports.

MIDHANI:

- Mishra Dhatu Nigam Limited, abbreviated as MIDHANI, is a specialized metals and metal alloys manufacturing facility in India, located in Hyderabad, Telangana.
- It is a Public Sector Undertaking, under the administrative control of Department of Defence Production, Ministry of Defence, Government of India.
- MIDHANI has performed well over the last five years. The company's value of production has increased by around 27 % from Rs 640 crore in FY 14-15 to Rs 815 crore in FY 18-19.
- Import substitution of high-pressure discs for compressor of Adour MK 811 engines for Jaguar fighter plane and 74 kg titanium casting for naval application are some of the prominent achievements.

7. National Conference on Coastal Disaster Risk Reduction and Resilience

Why in News?

- Union Minister of State for Home Affairs presided over the valedictory session of the 1st 'National Conference on Coastal Disaster Risk Reduction and Resilience (CDRR&R) – 2020', organised by the National Institute of Disaster Management in New Delhi recently.

Highlights:

- The one-day conference focussed on enhancing human capacity in terms of better understanding about coastal disaster risks.
- It aimed at taking effective collaborative actions, by implementing Prime Minister's 10-point agenda and Sendai Framework for Disaster Risk Reduction, for reducing the risk and enhancing the resilience amongst the affected stakeholders.
- It emphasised on dissemination of information related to national and local strategies for coastal disaster risk reduction and resilience.


Aim:

- To enhance the understanding of the issues and solutions on various facets for coastal disaster risk reduction and resilience.
- To explore and debate the most recent advances in the discipline.
- To develop a network mode roadmap for addressing the gaps by engaging with the institutions, researchers and experts.

Prime Minister's 10-point Agenda:

THE 10-POINT AGENDA

<p>ECONOMIC GROWTH FOR MORE JOBS Usher in reforms to shift the state's role in resource allocation to markets.</p> <p>BANKING Reduce state control, bring in changes to ensure competition and market discipline.</p> <p>TAXATION Government should simplify taxes and reduce its discretionary powers.</p> <p>FISCAL RESTRAINT The state must not overspend and harm RBI's ability to contain inflation.</p> <p>INSTITUTIONAL AUTONOMY Minimize political interference, regulatory capture, crony capitalism and corruption.</p>	<p>AGRICULTURE AND WELFARE Farm restrictions must go. Income transfers that only exclude the richest 25%.</p> <p>BASIC HEALTHCARE AND EDUCATION A top provision by the state, with equal access assured to all.</p> <p>INFRASTRUCTURE & URBAN PLANNING A focus on water, electricity and connectivity. Liveable cities.</p> <p>ENVIRONMENT A combination of incentives and strictures to contain all forms of ecological damage.</p> <p>RULE OF LAW AND EQUAL RIGHTS An emphasis on human rights, gender equality, data privacy and equality for all.</p>
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- **The Prime Minister's 10-point agenda on DRR is:**
 - ✓ All development sectors must imbibe the principles of disaster risk management.
 - ✓ Work towards risk coverage for all– starting from poor households to SMEs to multi-national corporations to nation states.
 - ✓ Encourage greater involvement and leadership of women in disaster risk management.
 - ✓ Invest in risk mapping globally.
 - ✓ Leverage technology to enhance the efficiency of our disaster risk management efforts.
 - ✓ Develop a network of universities to work on disaster issues.
 - ✓ Utilise the opportunities provided by social media and mobile technologies.
 - ✓ Build on local capacity and initiative.
 - ✓ Opportunity to learn from a disaster must not be wasted.
 - ✓ Bring about greater cohesion in international response to disasters.

Sendai Framework for Disaster Risk Reduction 2015-2030:

- It is a global agreement to reduce and prevent disaster risks across the globe.
- It was adopted at the Third United Nations World Conference on Disaster Risk Reduction, in Sendai, Japan in March 2015.

<p>1 OUTCOME</p> <p>The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, cultural, cultural and environmental assets of persons, businesses, communities and countries</p> <p>1 GOAL</p> <p>Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience.</p> <p>4 PRIORITIES</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="background-color: #e91e63; color: white;">Understanding disaster risk</td> <td style="background-color: #9c27b0; color: white;">Strengthening disaster risk governance to manage disaster risk</td> </tr> <tr> <td style="background-color: #ff9800; color: white;">Investing in disaster risk reduction for resilience</td> <td style="background-color: #00bcd4; color: white;">Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction</td> </tr> </table>	Understanding disaster risk	Strengthening disaster risk governance to manage disaster risk	Investing in disaster risk reduction for resilience	Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction	<p>7 TARGETS</p> <ul style="list-style-type: none"> ↓ DISASTER MORTALITY BY 2030 ↓ NUMBER OF AFFECTED PEOPLE BY 2030 ↓ ECONOMIC LOSS BY 2030 ↓ INFRASTRUCTURE DAMAGE BY 2030 ↑ DRR NATIONAL/LOCAL STRATEGIES BY 2020 ↑ INTERNATIONAL COOPERATION BY 2030 ↑ EWS AND DR INFORMATION BY 2030
Understanding disaster risk	Strengthening disaster risk governance to manage disaster risk				
Investing in disaster risk reduction for resilience	Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction				

- The non-legally binding agreement highlights the need for good governance in disaster risk reduction at the local, national, regional and global level.
- It aims to strengthen social and economic resilience to ease the negative effects of climate change, man-made disasters, and natural hazards.
- For the first time the goals are defined in terms of outcome-based targets instead of focusing on sets of activities and actions.
- It places governments at the centre of disaster risk reduction with the framework emphasizing the need to strengthen the disaster risk governance.
- It places almost equal importance on all kinds of disasters and not only on those arising from natural hazards.
- Implementation of integrated environmental and natural resource management approaches is needed for disaster reduction.

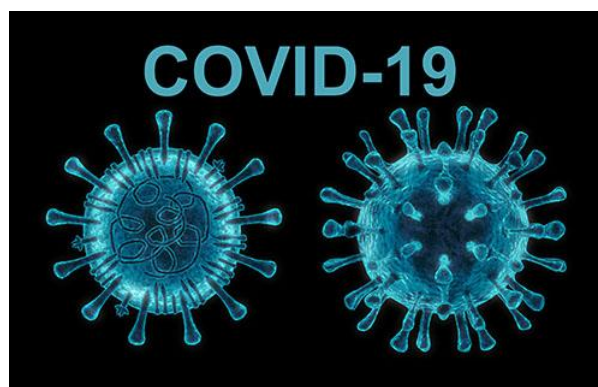
The Four Priorities for Action:

- **Priority-1** Understanding Disaster risk management should be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure, hazard characteristics and the environment.
- **Priority-2** To manage Disaster risk governance at the national, regional and global levels.
- **Priority-3** Investing in disaster risk reduction for resilience.
- **Priority-4** Enhancing disaster preparedness for effective response and to build better in recovery, rehabilitation and reconstruction.

8. WHO not to declare SARS-CoV-2 a pandemic

Why in News?

- WHO Director-General Tedros Adhanom Ghebreyesus made it abundantly clear that WHO will not declare COVID-19 a pandemic at this moment.



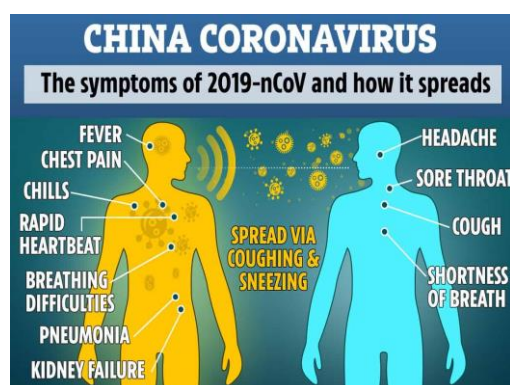
Highlights:

- A pandemic is defined as the worldwide spread of a new disease. The last pandemic reported was the 2009 H1N1 flu pandemic, which killed hundreds of thousands globally.
- According to 2017 pandemic influenza risk management guidelines, the WHO uses pandemic influenza phases, interpandemic, alert, pandemic and transition, to reflect its risk assessment of the global situation regarding each influenza virus with pandemic potential infecting humans.
- Fourteen countries have managed to contain the spread of the virus and no new case has been reported for more than a week. And nine countries, including India, Nepal and Sri Lanka, have not reported any additional cases in the last two weeks.
- This highlights that the virus can be stopped in its track if countries take appropriate and timely actions. Except Antarctica, novel coronavirus cases have been reported from all continents.
- In the past week, 20 countries have confirmed their first coronavirus cases. South Korea has the most number of confirmed novel coronavirus infections, 1,766 (and 13 deaths) outside mainland China. Italy (528), Iran (245) and Japan (189) are the other countries with most number of cases.

Measures to stop spread:

- The priority should be to detect cases early and isolate people who test positive for the virus. Once a case is detected, the focus should be to trace the contacts and treat them if already infected. Though the average incubation period is five-seven days, a few have shown up symptoms at the end of 24 days.
- Efforts should also be focussed on preventing outbreaks in hospitals and spread in the community. One way to stop the spread in the community is to avoid mass gathering in enclosed spaces.

Coronavirus:



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- This is a new coronavirus that has been identified for the first time in the city of Wuhan, the capital of the Hubei Province in mainland China.
 - It was identified after people developed pneumonia without an evident cause and where current vaccines and treatment methods were not effective.
 - There have been around 40000 people infected with the virus in China. There have also been over 1000 fatalities there, exceeding those from SARS.
 - A handful of cases have also been reported outside China, in Australia, Thailand, France, the US and a few other countries as well. India reported its first case towards the end of January 2020.
 - There is not much known about the new coronavirus, which has been designated 2019-nCoV.
 - It is considered a novel virus outbreak because the virus is novel (new – not seen earlier).

