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1. INDIAN SOCIETY & POLITY

1. National Commission for Homoeopathy Bill, 2019

Why in News?

- Cabinet approves official amendments in the National Commission for Homoeopathy Bill, 2019.

Highlights:

- The Union Cabinet has given its approval to the official amendments in the National Commission for Homoeopathy Bill, 2019 for amending the Homoeopathy Central Council (HCC) Act, 1973. At present, the Bill is pending in Rajya Sabha.
- The amendments intend to ensure necessary regulatory reforms in the field of Homoeopathy education.
- They will also enable transparency and accountability for protecting the interests of the general public.
- The bill seeks the establishment of the National Commission for Homoeopathy, which will replace the current regulatory body for homoeopathy, the Homoeopathy Central Council.
- The Commission will promote the availability of affordable healthcare services in all parts of the country.
- The Homoeopathy Central Council (HCC) Act, 1973 was enacted for:
- The constitution of a Central Council of Homoeopathy for the regulation of education and practice of Homoeopathy.
- The maintenance of a Central Register of Homoeopathy and for matters connected therewith.
- The broad functions, constitution and regulation-making powers of the Council are identical to those of the Medical Council of India.
- While the Act provides a solid foundation for the growth of medical education and practice in Homoeopathy, various bottlenecks in the functioning of the Council have been experienced, which has resulted in serious detrimental effects on medical education as well as delivery of quality Homoeopathy Healthcare Services.

2. National Commission for Indian System of Medicine Bill, 2019

Why in News?

- Cabinet approves proposal for official amendments in the National Commission for Indian System of Medicine (NCIM) Bill, 2019.

Highlights:

- The NCIM bill is aimed at bringing reforms in the medical education of the Indian medicine sector in lines with the National Medical Commission proposed for Allopathic system of medicine.
- The draft bill provides for the constitution of a National Commission with four autonomous boards entrusted with conducting overall education of Ayurveda under the Board of Ayurveda and Unani, Siddha and Sowa Rigpa under the Board of Unani, Siddha and Sowa Rigpa.
- The bill is currently pending in the Rajya Sabha.
- The proposed legislation will:
 - ✓ Ensure necessary regulatory reforms in the field of Indian System of Medicine education.
 - ✓ Enable transparency and accountability for protecting the interest of the general public.
- The Commission will also promote the availability of affordable healthcare services in all parts of the country.
- The Commission has been structured to streamline the functions related to academic standards, evaluation, assessment and accreditation of educational institutions pertaining to the Indian System of Medicine.
- The main objective of establishing the NCIM is to promote equity by ensuring an adequate supply of quality medical professionals and enforce high ethical standards in all aspects of medical services in the Indian System of Medicine.

3. The Medical Termination of Pregnancy (Amendment) Bill, 2020

Why in News?

- Cabinet approves the Medical Termination of Pregnancy (Amendment) Bill, 2020.

Highlights:

- The Union Cabinet has approved the Medical Termination of Pregnancy (Amendment) Bill, 2020 to amend the Medical Termination of Pregnancy Act, 1971. The Bill will be introduced in the ensuing session of the Parliament.
- Proposing requirement for opinion of one provider for termination of pregnancy, up to 20 weeks of gestation and introducing the requirement of opinion of two providers for termination of pregnancy of 20-24 weeks of gestation.
- Enhancing the upper gestation limit from 20 to 24 weeks for special categories of women which will be defined in the amendments to the MTP (Medical Termination of Pregnancy)

Rules and would include ‘vulnerable women including survivors of rape, victims of incest and other vulnerable women (like differently-abled women, minors), etc.

- The upper gestation limit not to apply in cases of substantial foetal abnormalities diagnosed by the Medical Board. The composition, functions and other details of the Medical Board to be prescribed subsequently in Rules under the Act.
- Name and other particulars of a woman whose pregnancy has been terminated shall not be revealed except to a person authorised in any law for the time being in force.
- The Bill is for expanding access of women to safe and legal abortion services on therapeutic, eugenic, humanitarian or social grounds.
- It is a step towards the safety and well-being of women and many women are expected to be benefitted by this. 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 proposed increase in gestational age will ensure dignity, autonomy, confidentiality and justice for women who need to terminate pregnancy.

4. Mercy petition

Why in News?

- The Supreme Court reserved its verdict on a petition by December 16, 2012 gangrape-murder convict Mukesh Kumar Singh, who had challenged the dismissal of his mercy plea by President Ram Nath Kovind.

Highlights:

- The case dates back to December 16, 2012, when a 23-year-old woman was gangraped and assaulted inside a moving bus in South Delhi by six persons, before being thrown out on the road. She died on December 29, 2012, at a hospital in Singapore.

President's Clemency Powers:

- Under the Constitution of India (Article 72), the President of India can grant a pardon or reduce the sentence of a convicted person, particularly in cases involving capital punishment. A similar and parallel power vests in the governors of each state under Article 161.
- The pardoning power of the president is not absolute. It is governed by the advice of the Council of Ministers. This has not been discussed by the constitution but is the practical truth.

- Both the President and Governor are bound by the advice of their respective Councils of Ministers and hence the exercise of this power is of an executive character. It is therefore subject to Judicial Review as held by the Supreme Court of India in the case of Maru Ram v. Union of India (1980). It was subsequently confirmed by Kehar Singh v. Union of India [1988].
- In the case of Epuru Sudhakar & Anr vs Govt. Of A.P. & Ors [2006] , Supreme Court, it was held that clemency is subject to judicial review and that it cannot be dispensed as a privilege or act of grace.
- There are five different types of pardoning which are mandated by law.
 - ✓ **Pardon:** means completely absolving the person of the crime and letting him go free. The pardoned criminal will be like a normal citizen.
 - ✓ **Commutation:** means changing the type of punishment given to the guilty into a less harsh one, for example, a death penalty commuted to a life sentence.
 - ✓ **Reprieve:** means a delay allowed in the execution of a sentence, usually a death sentence, for a guilty person to allow him some time to apply for Presidential Pardon or some other legal remedy to prove his innocence or successful rehabilitation.
 - ✓ **Respite:** means reducing the quantum or degree of the punishment to a criminal in view of some special circumstances, like pregnancy, mental condition etc.
 - ✓ **Remission:** means changing the quantum of the punishment without changing its nature, for example reducing twenty-year rigorous imprisonment to ten years.

These Powers are Applicable:

- ✓ in all cases where the punishment or sentence is by a court martial;
- ✓ in all cases where the punishment or sentence is for an offence against any law relating to a matter to which the executive power of the Union extends;
- ✓ in all cases where the sentence is a sentence of death.

2. GOVERNANCE

1. Indian Science Congress

Why in News?

- PM set to inaugurate the 107th Indian Science Congress (ISC) at University of Agricultural Sciences (UAS), Bangalore.

Highlights:

- Prime Minister Modi will deliver the inaugural address on the occasion and also launch I-STEM Portal on the occasion.
- The theme of the ISC for 2020 is “Science and Technology: Rural Development”.
- More than 15,000 participants, including Nobel Laureates, scientists, intellectuals, academicians, policy makers, researchers, students and delegates from different institutions are expected to participate in the event.
- The ISC is organised by the Indian Science Congress Association (ISCA).

Indian Science Congress Association (ISCA):

- The ISCA was formed in 1914 and is a premier scientific organisation in India.
- It organises the ISC every year in the first week of January.
- Its first meeting was held in the Asiatic Society, Kolkata.
- It is headquartered in Kolkata. The ISCA was started by two British chemists, Professor J. L. Simonsen and Professor P.S. MacMahon. Starting with just over a hundred members, the ISCA today boasts of a membership of over 60,000.

Objectives:

- To advance and promote the cause of science in India.
- To hold an annual congress at a suitable place in India.
- To publish such proceedings, journals, transactions and other publications as may be considered desirable. To secure and manage funds and endowments for the promotion of Science including the rights of disposing of or selling all or any portion of the properties of the Association.

2. Political Parties Registration Tracking Management System (PPRTMS)

Why in News?

- In order to enable applicants to track the status of the application, the Election Commission of India has launched a “Political Parties Registration Tracking Management System (PPRTMS)”.

PPRTMS:

- The salient feature in the PPRTMS is that the applicant, who is applying for party registration from 1st January, 2020 will be able to track the progress of his/her application and will get status update through SMS and e-mail.
- The status can be tracked through the Commission's portal.

Registration of Political Parties:

- Registration of political parties is governed by the provisions of Section 29A of the Representation of the People Act, 1951.
- An association seeking registration under the said Section has to submit an application to the ECI within a period of 30 days following the date of its formation.
- These guidelines are in exercise by ECI of the powers conferred by Article 324 of the Constitution of India and Section 29A of the Representation of the People Act, 1951.

3. 'MANI' App

Why in News?

- With an eye to aid the differently-abled, the Reserve Bank of India (RBI) has launched a mobile app to identify currency notes.

MANI App:

- 'MANI', is an acronym for Mobile Aided Note Identifier.
- The visually challenged can identify the denomination of a note by using the application, which can also work offline once it is installed.
- A user will have to scan the notes using the camera and it will give the audio output to give out results in Hindi and English.
- RBI has clarified that the app does not authenticate a note as either genuine or counterfeit.

4. World Braille Day

Why in News?

- All India Radio News and its regional units in Pune and Nagpur have observed World Braille Day in an innovative way by broadcasting news read by visually impaired students and officers. The news was scripted in Braille and read live.

World Braille Day:

- January 4th is celebrated as World Braille Day in order to mark the birth anniversary of Louis Braille. The declaration to celebrate the day was given by the UN in 2018.

- Louis Braille is credited with inventing the Braille language. Braille is a tactile writing system used by people who are visually impaired.
- The World Braille Day spreads awareness about Braille script and other accessible forms of communication, as most of the public places such as hospitals fail to provide their material in Braille.
- Despite 2.2 billion people with visual impairment in the world, most of the schools do not offer classes in Braille and a lot of countries do not even recognize this as a part of their educational curriculum.
- The 2006 Convention on the Rights of Persons with Disabilities considers Braille essential for education.
- Hence, the celebration of the World Braille Day is intended to spread awareness amongst people regarding the necessity and importance of including the language at a more global level.

5. UJALA and SLNP

Why in News?

- The Government of India's UJALA & Street Lighting National Programme (SLNP) complete five successful years.

UJALA:

- **Unnat Jyoti by Affordable Lighting for All (UJALA)** is a zero-subsidy scheme launched by the Government in 2015.
- It is touted as the world's largest domestic lighting project.

Objectives:

- The UJALA scheme also known as the LED-based Domestic Efficient Lighting Programme (DELP) aims to promote the efficient usage of energy for all i.e., its consumption, savings and lighting.
- According to the UJALA scheme, LED bulbs would be distributed by the Electricity Distribution Company at subsidized rates to every grid-connected customer with a metered connection.

Implementation of UJALA Scheme:

- Implementation of the UJALA scheme was done successfully in terms of investment and risk factors. The scheme was implemented as a joint contribution of EESL and DISCOM. Some of the outputs that were put forward by the UJALA scheme were:

- Replacing 200 million ordinary light bulbs by LED bulbs.
- Load reduction of 5000 MW.
- To reduce the emissions caused by greenhouse gases by 79 million tonnes of carbon dioxide.

SLNP:

- The SLNP is a government scheme to promote energy-efficiency in India.
- Energy Efficiency Services Limited (EESL), a joint venture of PSUs under the Power Ministry, is the implementing agency for SLNP.
- EESL, launched in 2015, has already replaced 50 lakh street lights with LED bulbs in more than 500 cities of India.
- To bring in mass-scale transformation, EESL has adopted a unique strategy by joining hands with states, municipal bodies and Urban Local Bodies (ULBs).
- Under the programme, EESL replaces the conventional street lights with LEDs at its own costs, with no upfront investment by the municipalities, thereby making their adoption even more attractive.
- Over a period, EESL is repaid through the consequent reduction in energy and maintenance cost of the municipality.
- This scheme is expected to enable peak demand reduction of 500 MW, annual energy savings of 190 crore kWh, and reduction in 15 lakh tons of CO₂.

Objectives:

- Mitigate climate change by implementing energy-efficient LED-based street lighting.
- Reduce energy consumption in lighting which helps DISCOMs to manage peak demand.
- Provide a sustainable service model that obviates the need for upfront capital investment as well as additional revenue expenditure to pay for the procurement of LED lights.
- Enhance municipal services at no upfront capital cost of municipalities. The Government of India's UJALA & Street Lighting National Programme (SLNP) complete five successful years.

6. WHO prequalifies Serum's low-cost Pneumococcal Vaccine

Why in News?

- Pneumococcal vaccine developed by the Pune-based Serum Institute of India has been pre-qualified by the World Health Organisation (WHO).

Pneumococcal Vaccine:

- Pneumococcal vaccination is a method of preventing a specific type of lung infection (pneumonia) that is caused by the pneumococcus (*Streptococcus pneumoniae*) bacterium.
- There are more than 80 different types of pneumococcus bacteria – 23 of them covered by the vaccine.
- The vaccine is injected into the body to stimulate the normal immune system to produce antibodies that are directed against pneumococcus bacteria.
- This method of stimulating the normal immune system to be directed against a specific microbe is called immunization.
- It does not protect against pneumonia caused by microbes other than pneumococcus bacteria, nor does it protect against pneumococcal bacterial strains not included in the vaccine.

Pneumosil:

- The pneumococcal vaccine PNEUMOSIL is a conjugate vaccine to help produce stronger immune response to a weak antigen.
- Serum Institute had optimized an efficient conjugate vaccine manufacturing processes for its meningitis A vaccine (MenAfriVac).
- It was used for manufacturing the pneumococcal vaccine. This helped the company reduce the manufacturing cost of pneumococcal vaccine.

Significance:

- Pneumonia caused 1,27,000 deaths in India in 2018, the second highest number of child mortality under the age of five in the world.
- In India, pneumonia and diarrhoea cause the most deaths in children under five years.
- In 2017, pneumococcal conjugate vaccine was included in the under India's Universal Immunisation Programme (UIP).
- It has been introduced in a phased manner starting with Himachal Pradesh, parts of Bihar, Uttar Pradesh, Madhya Pradesh and Rajasthan.
- **The efficacy of the Serum vaccine was tested against an already approved pneumococcal vaccine (Synflorix).**

7. Network for Scientific Co-operation for Food Safety and Applied Nutrition (NetSCoFAN)

Why in News?

- Union Health Minister has launched NetSCoFAN, a network of research & academic institutions working in the area of food & nutrition.

NetSCoFAN:

- The NetSCoFAN would comprise of eight groups of institutions working in different areas viz. biological, chemical, nutrition & labelling, food of animal origin, food of plant origin, water & beverages, food testing, and safer & sustainable packaging.
- FSSAI has identified eight Nodal Institutions who would develop a 'Ready Reckoner' that will have inventory of all research work, experts and institutions and would carry out and facilitate research, survey and related activities.
- It would identify research gaps in respective areas and collect, collate and develop database on food safety issues for risk assessment activities.
- The need for identify research gaps in respective areas and collect, collate and develop database on food safety issues for risk assessment activities, will be addressed by NetSCoFAN.
- The NetSCoFAN directory would be covering detailed information of various heads/Directors and lead scientists of lead and associated partnering institutions.

8. National Assessment and Accreditation Council (NAAC)

Why in News?

- Vice President addressed the silver jubilee function of the NAAC.

National Assessment and Accreditation Council (NAAC):

- The NAAC is an autonomous organisation that assesses and accredits institutions of higher education in India.
- It is funded by the University Grants Commission (UGC) and is an autonomous body under it.
- It was established in 1994 and is headquartered in Bengaluru.
- The mandate of the NAAC as reflected in its vision statement is in making quality assurance an integral part of the functioning of Higher Education Institutions (HEIs).

- The NAAC functions through its General Council (GC) and Executive Committee (EC) comprising educational administrators, policymakers and senior academicians from a cross-section of Indian higher education system.
- The Chairperson of the UGC is the President of the GC of the NAAC; the Chairperson of the EC is an eminent academician nominated by the President of GC (NAAC).
- The Director is the academic and administrative head of NAAC and is the member-secretary of both the GC and the EC.

Functions:

- Periodic assessment and accreditation of institutions of higher education.
- Stimulate the academic environment for the promotion of the quality of teaching-learning and research in higher education institutions.
- Encourage self-evaluation, accountability, autonomy and innovations in higher education.
- Undertake quality-related research studies, consultancy and training programmes.
- Collaborate with other stakeholders of higher education for quality evaluation, promotion and sustenance.
- HEIs with a record of at least two batches of students graduated, or been in existence for six years, whichever is earlier, are eligible to apply for the process of Assessment and Accreditation (A&A) of NAAC.
- The NAAC accreditation does not cover distance education units of HEIs and offshore campuses.
- It also does not accredit institutions providing technical education (that is covered by the National Board of Accreditation (NBA), an organization established by the All India Council for Technical Education (AICTE).

9. Fast Track Special Courts for Speedy disposal of Rape and POCSO Act Cases

Why in News?

- 1023 Fast Track Special Courts will be set up for Speedy disposal of Rape and POCSO Act Cases.

Highlights:

- The offences of rape and gang rape of women and children require effective deterrence through fast and time-bound completion of trials relating to sexual offences.
- To bring out more stringent provisions and expeditious trial and disposal of such cases, the Union of India enacted the Criminal Law (Amendment) Act, 2018.

- The Criminal Law (Amendment), Act 2013 was enacted for effective deterrence against sexual offences. This widened the definition of rape and made punishment more stringent.
- Further, the Criminal Law (Amendment) Act, 2018 was enacted to prescribe even more stringent penal provisions including death penalty for the rape of a girl below the age of 12 years. The Act also, among other things, mandates the completion of investigation and trials within 2 months each.
- The government has taken up the work of setting up of Fast Track Special Courts (FTSCs) as a part of the National Mission for Safety of Women (NMSW).
- The government has planned a series of measures to deal with women safety on mission mode and will make a comprehensive programme.
- The NMSW is going to cover all aspects from free medical care to legal aid to the victims of sexual assault by engaging public prosecutors in states and setting up of nearly 1,023 fast track courts for fast judgements.

10. Indian Railways signs MoU with RailTel for Phase 2 of e-Office Execution

Why in News?

- After the successful completion of the Phase 1 execution of National Informatics Centre (NIC) e office, Indian Railways has signed MoU with RailTel, a miniratna Public Sector Undertaking (PSU) under Ministry of Railways, for phase 2 of the project.

NIC e-Office:

- NIC e-Office is a cloud-enabled software developed by NIC that is being deployed/hosted from RailTel Tier III certified data centres at Secundrabad and Gurgaon.
- Currently 4 modules (File Management System (eFile), Knowledge Management System (KMS), Collaboration & Messaging Services (CAMS) & Personnel Information Management System (PIMS) are the part of the e-office system being implemented.
- E-Office fosters a paper-less culture which will not only save operational cost but also reduce the carbon footprint which is one of the most urgent needs of the world and directly impacting every citizen of the country.

RailTel:

- RailTel Corporation a “Mini Ratna (Category-I)” PSU of Ministry of Railways, is the largest neutral telecom services providers in the country owning a Pan-India optic fibre network covering all important towns & cities of the country and several rural areas covering 70% of India’s population.

- RailTel is in the forefront in providing nationwide Broadband Telecom & Multimedia Network in all parts of the country in addition to modernization of train operations and administration network systems for Indian Railways.
- With its Pan India high capacity network, RailTel is working towards creating a knowledge society at various fronts and has been selected for implementation of various mission-mode Govt. of India projects in the telecom field.

11. Centre's policy for treatment of Rare Diseases

Why in News?

- The Union Ministry of Health and Family Welfare has published a national policy for the treatment of 450 'rare diseases'.
- The policy intends to kickstart a registry of rare diseases, which will be maintained by the Indian Council of Medical Research (ICMR).

Highlights:

- The Centre first prepared such a policy in 2017 and appointed a committee in 2018 to review it. The revised policy says assistance of Rs 15 lakh may be provided for the treatment of some such diseases.

Rare Disease:

- Broadly, a 'rare disease' is defined as a health condition of low prevalence that affects a small number of people when compared with other prevalent diseases in the general population.
- There is no universally accepted definition of rare diseases, countries typically arrive at their own descriptions, taking into consideration disease prevalence, its severity and the existence of alternative therapeutic options.
- In the US, for instance, a rare disease is defined as a condition that affects fewer than 200,000 people.
- The same definition is used by the National Organisation for Rare Disorders (NORD). While a majority of rare diseases are believed to be genetic, many such as some rare cancers and some autoimmune diseases are not inherited.
- India does not have a definition of rare diseases because there is a lack of epidemiological data on their incidence and prevalence. According to the policy, rare diseases include genetic diseases, rare cancers, infectious tropical diseases, and degenerative diseases.

- As per the policy, out of all rare diseases in the world, less than five per cent have therapies available to treat them.
- In India, roughly 450 rare diseases have been recorded from tertiary hospitals, of which the most common are Haemophilia, Thalassemia, Sickle-cell anemia, auto-immune diseases, Gaucher's disease, and cystic fibrosis.

Effects of the Disease:

- Rare diseases pose a significant challenge to health care systems because of the difficulty in collecting epidemiological data, which in turn impedes the process of arriving at a disease burden, calculating cost estimations and making correct and timely diagnoses, among other problems.

Handling the Challenge:

- The policy has mentioned some measures, which include creating a patient registry for rare diseases, arriving at a definition for rare diseases that is suited to India, taking legal and other measures to control the prices of their drugs and developing standardised protocols for diagnosis and management of the treatment.
- Under the policy, there are three categories of rare diseases, requiring one-time curative treatment, diseases that require long-term treatment but where the cost is low, and those needing long-term treatments with high cost.

12. Bru-Reang Refugee Crisis

Why in News?

- Union Minister for Home Affairs, presided over the signing of an agreement between the Government of India, Governments of Tripura and Mizoram and Bru-Reang representatives to end the 23-year old Bru-Reang refugee crisis.

Highlights:

- This historic agreement is in line with PM Modi's vision for the progress of the North East and the empowerment of the people of the region.
- Under the new agreement, around 34,000 Bru refugees will be settled in Tripura and would be given aid from the Centre to help with their rehabilitation and all-round development.
- These people would get all the rights that normal residents of the States get and they would now be able to enjoy the benefits of social welfare schemes of Centre and State Governments.

- The settlement has been reached after detailed discussions held by the Union government with the State governments of Mizoram and Tripura and the representatives of Bru tribes.
- The Home Minister informed that under the new arrangement, each of the displaced families would be given residential plots, in addition to the aid under an earlier agreement of a fixed deposit of Rs. 4 lakhs, Rs. 5,000 cash aid per month for 2 years, free ration for 2 years and Rs. 1.5 lakhs aid to build their house.
- The government of Tripura would provide the land under this agreement.

Bru-Reang Refugee Crisis:

- Around 5,000 families consisting of around 30,000 Bru-Reang tribals were forced to flee Mizoram and seek shelter in Tripura following ethnic tension.
- These people were housed in temporary camps in North Tripura.
- The Union government had been assisting the two-State governments for taking care of the refugees. An agreement was signed between the Union government, the two-State governments and representatives of Bru-Reang refugees in 2018, as a result of which the aid given to these families was increased substantially and 328 families consisting of 1369 individuals returned to Mizoram under the agreement.

13. Blue Flag Certification

Why in News?

- The Centre issued an Extraordinary Gazette Notification declaring a list of activities and facilities that would be permissible in the Coastal Regulation Zone (CRZ) areas of certain beaches, which have been identified for obtaining the 'Blue Flag' certification.

Highlights:

- The Ministry of Environment, Forest and Climate Change (MoEFCC) had identified 13 beaches across the country for the Blue Flag certification, and announced a list of activities that would be permissible in their respective CRZ zones for that purpose.

Blue Flag Certification:

- The 'Blue Flag' is a certification that can be obtained by a beach, marina, or sustainable boating tourism operator, and serves as an eco-label.
- The certification is awarded by the Denmark-based non-profit Foundation for Environmental Education (FEE), which sets stringent environmental, educational, safety-related and access-related criteria that applicants must meet and maintain. It is awarded annually to beaches and marinas in FEE member countries.

- The certification is known as an indication of high environmental and quality standards. Forty-seven countries currently participate in the program, and 4,573 beaches, marinas, and boats have this certification.
- The Environment Ministry identified the following beaches in India for Blue Flag certification: Shivrajpur (Devbhumi Dwarka, Gujarat), Bhogave (Sindhudurg, Maharashtra), Ghoghla (Diu, Daman and Diu), Miramar (Panjim, Goa), Kasarkod (Karwar, Karnataka), Padubidri (Udupi, Karnataka), Kappad (Kozhikode, Kerala), Eden (Puducherry), Mahabalipuram (Kanchipuram, Tamil Nadu), Rushikonda (Visakhapatnam, Andhra Pradesh), Golden (Puri, Odisha), and Radhanagar (Port Blair, Andaman & Nicobar).

New Exemptions:

- The following activities and facilities would be permitted in the CRZ of the beaches, including Islands, subject to maintaining a minimum distance of 10 meters from the High Tide Line (HTL):
 - ✓ Portable toilet blocks, change rooms and shower panels; Grey water treatment plant;
 - ✓ Solid waste management plant; Solar power plant; Purified drinking water facility; Beach access pathways;
 - ✓ Landscaping lighting; Seating benches and sit-out umbrellas; Outdoor play / fitness equipment;
 - ✓ CCTV surveillance and control room; First aid station; Cloak room facility;
 - ✓ Safety watch towers and beach safety equipment;
 - ✓ Beach layout, environment information boards and other signages; Fencing, preferably vegetative; Parking facilities; Entry gate, tourist facilitation centre; and
- Other associated facilities or infrastructure, as per requirements of Blue Flag Certification.
- The notification also said that these activities and facilities would be exempt from prior clearance under the provisions of CRZ Notification, Island Protection Zone Notification and Island Coastal Regulation Zone Notifications respectively.

14. Annual Status of Education Report (ASER)

Why in News?

- Only 16% of children in Class 1 in 26 surveyed rural districts can read text at the prescribed level, while almost 40% cannot even recognise letters, according to the Annual Status of Education Report (ASER) 2019, released by NGO Pratham.

ASER (Annual Status of Education Report):

- ASER (Annual Status of Education Report) is an annual survey that aims to provide reliable annual estimates of children's schooling status and basic learning levels for each state and rural district in India.
- The report, based on a survey conducted in 26 districts across 24 states by education non-profit Pratham, also highlights a gender gap in schooling.

Report Highlights:

- Just 37.4% of children below six are able to recognize at least letters and only 25.6% can do additions, according to the report.
- Similarly, only 34.8% of children in Class II can read a text meant for the level below. And at Class III, only 50.8% can read texts meant for their juniors two levels below.
- Of six-year olds in Class 1, 41.5% of those in private schools could read words in comparison to only 19% from government schools.
- Similarly, 28% of those in government schools could do simple addition as against 47% in private schools.
- The study also showed how a better education level among mothers can lead to better outcomes among children in preschools and early schools.
- Numeracy skills among Class III children of illiterate mothers are much lower than those whose mothers had studied till Class XI or above.
- Only 29.2% of Class III children of illiterate mothers can do a two-digit addition. This rises to 64% for the same student cohort of mothers, who have studied at the level of senior secondary or above. The findings also showed that more girls are enrolled in government institutions and more boys in private institutions.
- The gap in enrolment between boys and girls is larger among 6-8 year olds, with 61.1% of all girls versus 52.1% of all boys in this age group going to a government institution.
- The report argues that a focus on cognitive skills rather than subject learning in the early years can make a big difference to basic literacy and Numeracy Abilities.

15. Green clearances waived for onshore and offshore Oil Exploration

Why in News?

- The Environment Ministry has exempted oil and gas firms, looking to conduct exploratory drilling, from seeking an Environmental Clearance.

Highlights:

- Until now, even exploratory surveys have required the highest level of environmental scrutiny, called category 'A', that needed project proponents to prepare an environment impact assessment (EIA) plan, have it scrutinised by a Centrally constituted committee of experts and subject the proposal to a public hearing involving the local residents of the proposed project site.
- The clearance is for both on-shore and offshore drilling explorations and the process is an ecologically-intensive exercise that involves digging multiple wells and conducting seismic surveys offshore. Even category A projects are frequently exempted if they are offshore. The new amendments demote exploratory projects to the category of 'B2'.
- This means it will be conducted by the States concerned and will not require an EIA. The move is part of a larger process of 'decentralisation' by the Centre in that it seeks to farm more regulatory actions to State and local units.
- Developing an offshore or onshore drilling site as a hydrocarbon block will however continue to merit a "category A" treatment.
- Environmentalists argue that offshore drilling operations can possibly effect fish, lead to a build-up of heavy water contaminants, disorient whales and sea life that rely on sonar for navigation and exacerbate the risk of oil spills.
- The government in 2019 relaxed rules that incentivises companies conducting oil exploration surveys in less-explored oil fields to keep a greater share of revenue if they chance upon viable hydrocarbon blocks. This has led to a rise in interest in oil and gas exploration with the Cauvery basin registering a boost in Activity.

16. Pulse Polio Programme

Why in News?

- The beginning of this year's Pulse Polio Programme was inaugurated from the Rashtrapati Bhavan itself. To prevent the virus from coming to India, the government has since March 2014 made the Oral Polio Vaccination (OPV) mandatory for those travelling between India and polio-affected countries.

Highlights:

- India launched the Pulse Polio immunisation programme in 1995, after a resolution for a global initiative of polio eradication was adopted by the World Health Assembly (WHA) in 1988.

- Children in the age group of 0-5 years are administered polio drops during national and sub-national immunisation rounds (in high-risk areas) every year.

India is Polio-Free:

- According to the Ministry of Health, the last polio case in the country was reported from Howrah district of West Bengal in January 2011.
- The WHO on February 24, 2012, removed India from the list of countries with active endemic wild polio virus transmission.
- Two years later, the South-East Asia Region of the WHO, of which India is a part, was certified as polio-free.

Polio:

- The WHO defines polio or poliomyelitis as a highly infectious viral disease, which mainly affects young children.
- The virus is transmitted by person-to-person, spread mainly through the faecal-oral route or, less frequently, by a common vehicle (e.g. contaminated water or food) and multiplies in the intestine, from where it can invade the nervous system and can cause paralysis.
- Initial symptoms of polio include fever, fatigue, headache, vomiting, stiffness in the neck, and pain in the limbs. In a small proportion of cases, the disease causes paralysis, which is often permanent.
- There is no cure for polio, it can only be prevented by immunization.

17. Drone Census

Why in News?

- India's first drone census has seen only 2,500 Ownership Acknowledgment Numbers (OANs) being issued by the Ministry of Civil Aviation (MoCA) since five days of beginning.

Drone Census:

- The MoCA had issued a notice providing a one-time opportunity for voluntary disclosure of all drones and operators starting from January 14.
- The DGCA issued the Civil Aviation Requirements (CAR), Section 3 – Air Transport Series X, Part I, Issue I, dated August 27, 2018 regulates use of drones.
- It provides the process for obtaining Unique Identification Number, Unmanned Aircraft Operator Permit (UAOP) and other operational requirements; there are drones that do not comply with the CAR.

- If a drone is not enlisted by 5 p.m. on January 31, then it will most definitely be confiscated.
- After January 31, only authorised retailers will be allowed to sell them after uploading buyers' Know your Customer (KYC) and sale invoice, similar to the sale of mobile phones and cars.

Significance:

- The exercise will give the government a picture of who owns what kind of drone in which part of the country.
- It will help in making policy decisions that should ideally become the base for understanding the scale of operations.

18. National Startup Advisory Council

Why in News?

- Central Government Notifies National Startup Advisory Council.

National Startup Advisory Council:

- The Council will advise the government on measures needed to build a strong ecosystem for nurturing innovation and startups in the country to drive sustainable economic growth and generate large scale employment opportunities.
- The Council will:
 - ✓ Suggest measures to foster a culture of innovation amongst citizens and students in particular.
 - ✓ Promote innovation in all sectors of the economy across the country, including semi-urban and rural areas.
 - ✓ Support creative and innovative ideas through incubation and research and development to transform them into valuable products, processes or solutions to improve productivity and efficiency.
 - ✓ Create an environment of absorption of innovation in industry.
 - ✓ Suggest measures to facilitate public organizations to assimilate innovation with a view to improving public service delivery.
 - ✓ Promote creation, protection and commercialization of intellectual property rights.
 - ✓ Make it easier to start, operate, grow and exit businesses by reducing regulatory compliances and costs.

- ✓ Promote ease of access to capital for startups, incentivize domestic capital for investments into startups, mobilize global capital for investments in Indian startups.
- ✓ Keep control of startups with original promoters.
- Provide access to global markets for Indian startups.

Members of the Council:

- The Council will be chaired by the Minister for Commerce & Industry.
- The Council will consist of non-official members, to be nominated by the Central Government, from various categories like founders of successful startups, veterans who have grown and scaled companies in India, persons capable of representing interests of investors into startups, persons capable of representing interests of incubators and accelerators and representatives of associations of stakeholders of startups and representatives of industry associations.
- The term of the non-official members of the Council will be for a period of two years.
- The nominees of the concerned Ministries/Departments/Organisations, not below the rank of Joint Secretary to the Government of India, will be ex-officio members of the Council.
- The Joint Secretary, Department for Promotion of Industry and Internal Trade will be the Convener of the Council.

19. The Three-Capital Debate

Why in News?

- The Andhra Pradesh Assembly passed The Andhra Pradesh Decentralisation and Equal Development of All Regions Bill, 2020, paving the way for three capitals for the state.

Highlights:

- Amaravati will now be only the legislative capital, while Visakhapatnam will be the executive capital and Kurnool the judicial capital.
- The government says it is against building one mega capital while neglecting other parts of the state.
- The government has given several reasons for its “decentralised development” project. According to the government, decentralisation was the central theme in recommendations of all major committees that were set up to suggest a suitable location for the capital of Andhra Pradesh.

- In December 2010, the Justice B N Srikrishna Committee, set up to look into the demand for a Telangana state, had said Rayalaseema and North Coastal Andhra were economically the most backward, and the concentration of development efforts in Hyderabad was the key reason for demand of separate states.
- A Committee constituted by the government under former IAS officer G N Rao, in its December 2019 report, recommended three capitals for balanced growth, and four regional Commissionerate's along the lines of Karnataka.
- A high-power Committee appointed by the government to study the recommendations of the G N Rao Committee suggested that the state should be demarcated into zones with separate zonal planning and development boards in order to ensure inclusive development, and that infrastructure projects focussed Rayalaseema and North Coastal Andhra should be prioritised.

Issues Involved:

- Executive capital Visakhapatnam is 700 km from judicial capital Kurnool, and 400 km from legislative capital Amaravati. The Amaravati-Kurnool distance is 370 km. The time and costs of travel will be significant.
- The AP Police are headquartered in Mangalagiri, 14 km from Vijayawada, and senior IPS officers who may be required to visit the Secretariat will have to travel 400 km to Visakhapatnam. Likewise, government officers who may have to appear in the High Court will have to travel 700 km to Kurnool, which does not have an airport.
- All officers and Ministerial staff who may have to be at hand to brief Ministers when the Assembly is in session, will probably have to stay put in Amaravati, leaving behind their other responsibilities in Visakhapatnam.
- There is widespread feeling in Andhra Pradesh that the three-capitals plan is essentially intended to deny Naidu credit for building a signature capital after his own style.

20. Corona Virus (Wuhan Virus)

Why in News?

- Chinese scientists have confirmed can spread between human beings.

Corona Virus:

- Corona viruses are large family of viruses, which cause illnesses to people and also circulate in animals including camels, cats and bats.

- They cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome and Severe Acute Respiratory Syndrome.
- 2019-nCoV is a new strain that has not been previously identified in humans.
- Much remains to be understood about the new coronavirus, which was first identified in China earlier this month.
- Not enough is known about 2019-nCoV to draw definitive conclusions about how it is transmitted, clinical features of disease, or the extent to which it has spread. The source also remains unknown.

Wuhan Virus:

- The first cases emerged in Wuhan in central China's Hubei province.
- On December 31 last year, authorities confirmed that a large number of patients with unexplained pneumonia were admitted in hospitals in the city.

Symptoms of Infection:

- According to the WHO, common signs include fever, cough, and shortness of breath. Serious infections can lead to pneumonia, kidney failure, and death.
- Although human-to-human transmission has now been confirmed, the WHO says animals are the outbreak's likely primary source. It is not known yet which animals are responsible.
- To prevent the spread of all respiratory infections, the WHO in general asks people to cover their mouths and noses when coughing or sneezing, and to frequently wash their hands.
- Direct contact with farm or wild animals should be avoided – similar outbreaks in the past, like the Severe Acute Respiratory Syndrome (SARS) emerged from markets where people were in contact with live animals.

Pandemic Concerns:

- People see a similarity with the SARS outbreak that infected over 8,000 people and killed around 775 in more than 35 countries worldwide in 2002-03.
- SARS too, was caused by a mystery coronavirus, and started in China.
- The source of the virus remained unknown for 15 years, until Chinese scientists in 2017 traced it back to a colony of horseshoe bats living in remote cave in Yunnan province.
- The virus was carried by civet cats which are sold in markets in China.
- Fears that SARS could reappear and memories of China misleading the rest of the world on the extent and seriousness of the outbreak have not gone away.

21. National Data and Analytics Platform (NDAP)

Why in News?

- NITI Aayog released its vision for the National Data and Analytics Platform (NDAP).

National Data and Analytics Platform (NDAP):

- The platform aims to democratize access to publicly available government data.
- It will host the latest datasets from various government websites, present them coherently, and provide tools for analytics and visualization.
- NDAP will follow a user-centric approach and will enable data access in a simple and intuitive portal tailored to the needs of a variety of stakeholders.
- NDAP will spearhead the standardization of formats in which data is presented across sectors and will cater to a wide audience of policymakers, researchers, innovators, data scientists, journalists and citizens.
- An inter-ministerial committee will oversee the progress of the development of the platform and a group of leading experts have been inducted into an advisory group to provide technical guidance for the development of the platform.
- The development of NDAP will take place over a period of one year. The first version of the platform is expected to be launched in 2021.

22. Web Portal 'GATI'

Why in News?

- Union Minister for Road Transport & Highways launched web portal 'GATI'.

GATI:

- The portal has been created by NHAI taking inspiration from the PRAGATI Portal used by PMO.
- It can be accessed from the NHAI Website and contractors/concessionaires can raise any project related issues on the Portal.
- The issue will immediately come to the notice of every official of NHAI including top management, and immediate action will be taken by the concerned officer, duly updating on the Portal.
- The issues raised in the GATI will be daily monitored by a team of officers in NHAI and will be constantly reviewed by the senior officers of NHAI and the Ministry of Road Transport & Highways.

- This will bring transparency and speed up the decision making giving real GATI (pace) to highway construction.

23. Forum of the Election Management Bodies of South Asia (FEMBoSA)

Why in News?

- The Election Commission of India is going to host the 10th annual meeting of the Forum of the Election Management Bodies of South Asia (FEMBoSA) at New Delhi.

FEMBoSA:

- FEMBoSA is a regional establishment to increase mutual cooperation in respect to the common interests of the SAARC's EMBs.
- In 2010, for the first time, the Bangladesh Election Commission organized a regional meeting titled 'Meeting on Cooperation of Election Commissions in the South Asia Region', which was later called Forum of Election Management Bodies of South Asia (FEMBoSA) as an institutionalized form.
- The forum's charter was approved in 2012 when FEMBoSA was established.
- FEMBoSA was established at the 3rd Conference of Heads of Election Management Bodies (EMBs) of the SAARC countries held at New Delhi in 2012.
- The annual FEMBoSA meeting is held by rotation among the members.
- The FEMBoSA represents a very large part of the democratic world and is an active regional association of the election management bodies of South Asia.
- The objectives of the Forum are:
 - ✓ To promote contact among the EMBs of the SAARC countries.
 - ✓ To share experiences with a view to learning from each other.
 - ✓ To cooperate with one another in enhancing the capabilities of the EMBs towards conducting free and fair elections.
- India is the chair of FEMBoSA for 2020.
- In the annual conference, an international conference on the theme 'Strengthening Institutional Capacity' will also be conducted.

24. Corruption Perception Index 2019

Why in News?

- The Corruption Perception report for 2019 has been released. It has revealed that a majority of countries are showing little to no improvement in tackling corruption.

CPI:

- The CPI is annually released by Transparency International.
- It draws on 13 surveys and expert assessments to measure public sector corruption in 180 countries and territories, giving each a score from zero (highly corrupt) to 100 (very clean).

Status check

The Corruption Perceptions Index uses a scale of zero (highly corrupt) to 100 (very clean). The global average for 2019 is 43

Country	Score in 2019	Rank in 2019	Change in rank from '18
Denmark	87	1	0
New Zealand	87	1	1
U.K.	77	12	-1
U.S.	69	23	-1
India	41	80	-2
China	41	80	7
Brazil	35	106	-1
Pakistan	32	120	-3
Russia	28	137	1
Bangladesh	26	146	3
Somalia	9	180	0

India's Performance:

- India's ranking in the CPI-2019 has slipped from 78 to 80 compared to the previous year.
- Its score of 41 out of 100 remains the same.
- CPI highlighted that unfair and opaque political financing, undue influence in decision-making and lobbying by powerful corporate interest groups, has resulted in stagnation or decline in the control of corruption.

Global Scenario:

- In the Asia Pacific region, the average score is 45, after many consecutive years of an average score of 44, which "illustrates general stagnation" across the region.
- China has improved its position from 87 to 80 with a score of 41 out of 100, a two-point jump.
- Despite the presence of high performers like New Zealand (87), Singapore (85), Australia (77), Hong Kong (76) and Japan (73), the Asia Pacific region hasn't witnessed substantial progress in anti-corruption.
- In addition, low performers like Afghanistan (16), North Korea (17) and Cambodia (20) continue to highlight serious challenges in the region.
- The top ranked countries are New Zealand and Denmark, with scores of 87 each, followed by Finland (86), Singapore (85), Sweden (85) and Switzerland (85).

25. ICDS Programme

Why in News?

- Centre seeks to revamp the ICDS scheme in urban areas. For this NITI Aayog will develop draft policy, which will be circulated to the Ministries for consultations.

Integrated Child Development Services (ICDS):

- The ICDS is a government programme in India which provides food, preschool education, primary healthcare, immunization, health check-up and referral services to children under 6 years of age and their mothers. The scheme was launched in 1975, discontinued in 1978 by the government of Morarji Desai, and then relaunched by the Tenth Five Year Plan.
- Tenth FYP also linked ICDS to Anganwadi centres established mainly in rural areas and staffed with frontline workers.
- The ICDS provide for Anganwadis or day-care centres which deliver a package of six services including:
 - ✓ Immunization
 - ✓ Supplementary nutrition
 - ✓ Health checkup
 - ✓ Referral services
 - ✓ Pre-school education (Non-Formal)
 - ✓ Nutrition and Health information

Implementation:

- For nutritional purposes ICDS provides 500 kilocalories (with 12-15 grams of protein) every day to every child below 6 years of age.
- For adolescent girls it is up to 500 kilo calories with up to 25 grams of protein every day.
- The services of Immunisation, Health Check-up and Referral Services delivered through Public Health Infrastructure under the Ministry of Health and Family Welfare.

Revamp for Urban Areas:

- Health and ICDS models that work in rural areas may not work in urban areas because of higher population density, transportation challenges and migration.
- Children in urban areas were overweight and obese as indicated by subscapular skinfold thickness (SSFT) for their age.
- The first-ever pan-India survey on the nutrition status of children, highlighted that malnutrition among children in urban India.

- It found a higher prevalence of obesity because of relative prosperity and lifestyle patterns, along with iron and Vitamin D deficiency.
- According to government data from 2018, of the 14 lakh anganwadis across the country there are only 1.38 lakh anganwadis in Urban Areas.

26. NISHTHA

Why in News?

- In continuation of Union Government's outreach initiative, Union Minister of Human Resource Development inaugurated NISHTHA (National Initiative for School Heads' and Teachers' Holistic Advancement). NISHTHA is a two-day orientation workshop for the teachers of the Union Territory of Jammu and Kashmir at SKICC, Srinagar.
- A number of completed projects and initiatives were e-launched by the minister on the occasion.

NISHTHA:

- NISHTHA is a capacity building programme for "Improving Quality of School Education through Integrated Teacher Training".
- It aims to build competencies among all the teachers and school principals at the elementary stage.
- The basic objective of this massive training programme is to motivate and equip teachers to encourage and foster critical thinking in students.
- The initiative is first of its kind wherein standardized training modules are developed at national level for all States and UTs. It is also the world's largest teachers' training programme of its kind.
- NISHTHA is a benchmark programme that will raise the standards of education throughout the country.
- It will prove to be helpful in inculcating creativity among children and stimulate their imagination as well as physical and mental wellbeing.
- It has already been launched in 20 states of the country and around 21000 e-resource persons have been trained so far.
- The main objective of the initiative is to help the overall development of students as better citizens.
- The art modules included in the programme instil cooperation and spirit of unity with responsibility.

27. EC tells Supreme Court, criminally tainted candidates must not Get Tickets

Why in News?

- The Supreme Court has agreed to examine a proposition made by the Election Commission (EC) to ask political parties to not give ticket to those with criminal antecedents.
- The Supreme Court's long string of judgments against criminalisation of politics has hardly scratched the surface of the deep rot.

Highlights:

- A previous judgment had urged Parliament to bring a “strong law” to cleanse political parties of leaders facing trial for serious crimes.
- The court had suggested that Parliament frame a law that makes it obligatory for political parties to remove leaders charged with “heinous and grievous” crimes like rape, murder and kidnapping, only to a name a few, and refuse ticket to offenders in both parliamentary and Assembly polls.

Grounds for Disqualification:

- Parliament has the power to make a law in respect to the issue of qualification and disqualification of the membership in case:
 - ✓ He holds any office of profit under the Government of India or of any state, other than an office declared by a law of Parliament not to disqualify its holder.
 - ✓ He is of unsound mind and stand so declared by a competent court.
 - ✓ He is an undischarged insolvent.
 - ✓ He is not a citizen of India or has voluntarily acquired the citizenship of a foreign state, or is under any acknowledgement or allegiance or adherence to a foreign state, and It is he so disqualified by or under any law of Parliament. It applies to the case of 'defection' as prescribed in tenth schedule.
- Any dispute about the disqualification of a Member of Parliament shall be referred to the President, who will take a decision on the advice of the Election Commission and decision shall be final according to the article 103.
- In case of disqualification on grounds of defection, the matter will be decided by speaker or chairman or Rajya Sabha as the case may be.
- The representation of people act, 1951 also lays down certain conditions for disqualification of MPs and MLAs.
- **They are as follows:**

- ✓ He must not have been convicted by a court of any offence and sentenced to imprisonment for a period of more than two years.
- ✓ He must not have been found guilty by a court or on election tribunal of certain election or corrupt practices in the elections.
- ✓ He must not have been dismissed for corruption or disloyalty from government services.
- ✓ He must not have failed to lodge on his election expenses within time and in a manner prescribed by law.
- ✓ He must not have any interest in government contracts, execution of government work or services.
- ✓ He must not be a director or managing agent nor hold an office of profit under any corporation in which the government has any financial interest.

28. Central Board of Indirect Taxes & Customs (CBIC)

Why in News?

- While addressing the Investiture Ceremony & International Customs Day 2020, the Union Minister of State for Finance & Corporate Affairs talked about the big role the CBIC will play in improving India's Ease of Doing Business ranking.

CBIC:

- The CBIC is the apex body for administering the levy and collection of indirect taxes of the Union of India.
- The Central Board of Indirect Taxes (CBIC) is a part of the Department of Revenue under the Ministry of Finance, Government of India.
- For more on the CBIC, check PIB dated 7th Nov 2019 under the heading 'DIN System of CBIC'.

International Customs Day:

- Annually held on January 26, International Customs Day (ICD) recognizes the role of custom officials and agencies in maintaining border security.
- It focuses on the working conditions and challenges that customs officers face in their jobs.
- It was instituted by the World Customs Organization (WCO).
- January 26th commemorates the day in 1953 when the inaugural session of the Customs Cooperation Council (CCC) was held in Brussels, Belgium.

- In 1994 the CCC was renamed World Customs Organization (WCO) and today customs organizations from 179 countries are WCO members.
- The theme for the 2020 commemoration was, ‘Customs fostering Sustainability for People, Prosperity and the Planet’.

29. Bhuvan Panchayat V 3.0

Why in News?

- The Union Minister of State for the Ministry of Development of North Eastern Region, Personnel, Public Grievances and Pensions, Atomic Energy and Space launched the Bhuvan Panchayat V 3.0 web portal in Bengaluru.

Bhuvan Panchayat:

- For better planning and monitoring of government projects, the Indian Space Research Organisation (ISRO) launched the Bhuvan Panchayat web portal’s version 3.0.
- For the first time, a thematic database on a 1:1000 scale for the entire country is available with integrated high resolution satellite data for planning.
- ISRO will collaborate with the gram panchayat members and stakeholders to understand their data requirements.
- The third version of the portal will provide database visualisation and services for the benefit of panchayat members, among others.
- The project is meant to provide geo-spatial services to aid gram panchayat development planning process of the Ministry of Panchayati Raj.
- Taking advantage of information and communication technology, the Bhuvan Panchayat web portal was launched for visualisation, planning and monitoring of schemes at panchayat levels.
- The new portal has a higher resolution and about 47 parameters in total.

Bhuvan:

- The Bhuvan portal provides geospatial services.
- It disseminates tile-wise one-time satellite data of IRS sensors, and satellite-derived products pertaining to various themes and domains.
- Its services are used for getting information about natural resources, agriculture, forestry and environment, rural development, water resources, urban infrastructure, ocean sciences and atmosphere, and providing disaster management support.
- It is run by the National Remote Sensing Centre of the ISRO.

30. China - Epicentre of Global Outbreaks of Disease

Why in News?

- Several deadly new viruses in recent years have emerged in China – Severe Acute Respiratory Syndrome (SARS), bird flu, and now the novel Coronavirus (nCOV).

Zoonotic Infections:

- Closely packed stalls in busy marketplaces, the Chinese taste for exotic meats, and the high population density of cities create the conditions for the spread of zoonotic infections.
- The reason could lie in the busy food markets dotting cities across the country – where fruits, vegetables, hairy crabs and butchered meat are often sold next to bamboo rats, snakes, turtles, and palm civets.
- The relationship between zoonotic pathogens and global pandemics are not new.
- The WHO estimates that globally, about a billion cases of illness and millions of deaths occur every year from zoonoses, i.e, diseases and infections naturally transmitted between people and vertebrate animals.
- Some 60% of emerging infectious diseases globally are zoonoses. Of the over 30 new human pathogens detected over the last three decades, 75% originated in animals.

Animal Markets in China:

- In animal markets, there are greater chances of transmission of a virus from animals to humans, and its mutation to adapt to the human body.
- It has happened wherever in the world there is unregulated mixing of humans and animals, either wild or domesticated.
- The official referred to the Ebola outbreak in Africa there it was wild chimpanzees who had the disease. It came into humans after these were killed and consumed.

Corona Transmitted from Snake:

- The researchers found evidence that the 2019-nCoV may have resided in snakes before being transmitted to humans.
- The findings suggest that snake is the most probable wildlife animal reservoir for the 2019-nCoV.
- Researchers also said that there is very likely to be an intermediate non-bat host which would have picked up the virus from bats.
- They said recombination within the viral receptor-binding protein may have allowed for cross-species transmission from snake to humans.

- The new virus is similar to the one which caused the outbreak of Severe Acute Respiratory Syndrome (SARS).
- However, the study noted that unlike the SARS-CoV, the 2019-nCoV causes a mild form of viral pneumonia, and has limited capability for person-person spread.

31. Karnataka Anti-superstition Law

Why in News?

- A controversial anti-superstition law in Karnataka was formally notified by the Current Government.

Provisions of the Earlier Drafts:

- The law, which was initially drafted as the Karnataka Anti Superstition Bill, 2013, was a pet project of former CM Siddaramaiah.
- The model Bill held human dignity as its central tenet and sought eradication of irrational practices found in different communities.
- The first draft made practices like inflicting self-wounds and conversion through bribery illegal.
- Some of the proposals opposed by religious leaders and political parties in the early draft were the ban on practices such as the carrying of priests in palanquins, worshipping the feet of religious leaders.
- It sought to ban Made Snana practised in the Dakshina Kannada region where Dalits roll over the remains of food consumed by upper castes.

The Current Version:

- A Bill with sizable consensus across the political spectrum finally evolved in 2017. A total of 16 practices have been banned under the law.
- The practice of Vaastu, astrology, pradakshina or circumambulation of holy places, yatras, parikramas performed at religious places were kept out of the purview of the law.
- Made Snana was banned under the law with respect to having Dalits roll over leftover food.
- The practice has now been modified to be voluntary and not involving leftover food.
- Practices such as barring menstruating women from entering houses of worship and their homes, coercing people to take part in fire-walks, and beating up people by declaring them evil, are among the irrational practices that have been banned under the 2017 law.
- Penalties:

-
- The law stipulates “imprisonment for a term which shall not be less than one year but which may extend to seven years and with fine which shall not be less than five thousand rupees but which may extend to fifty thousand rupees”, as punishment for violations.
 - The law is to implemented by the state police with the appointment of vigilance officers under the law at police stations.



3. SCIENCE & TECHNOLOGY

1. Satcom Technology Deployed for Learning

Why in News?

- The Rajasthan government has started using satellite communication technology in a big way to enhance the learning outcome in educational institutions and generate awareness about social welfare schemes, while giving priority to the five aspirational districts selected by NITI Aayog in the State.

Highlights:

- The Science & Technology Department has taken an initiative to provide the facility of receive only terminals (ROT) and satellite interactive terminals (SIT) for getting the services of subject experts in the government schools and colleges and propagate various schemes in the remote areas with no internet connectivity.
- The technique would be used during the first phase in approximately 2,000 institutions coming under various departments, such as education, higher education, social welfare, minority welfare, woman and child development and tribal area development.
- The students studying English and science subjects in the government educational institutions will get services of subject experts through ROT and SIT.
- The state government is hoping that the level of English and science subjects would be increased among students of Class VI to XII in order to get better results in the board examinations of Class X and XII.
- The institutions with the shortage of teachers will especially benefit from the geostationary satellite uplinking facilities.
- Under the initiative, people going for Haj pilgrimage, who were earlier required to come to Jaipur for training, would be trained at the district level through ROT and SIT installed in the government colleges.
- The special focus of the initiative will be laid on the five aspirational districts selected by NITI Aayog — Karauli, Dholpur, Baran, Jaisalmer and Sirohi — where the satellite--related resources would be installed at old age homes and children's homes.
- Along with this, the eight community radio stations run by the S&T Department would publicise education-related schemes in these districts.

2. The National Council of Science Museums

Why in News?

- National Council of Science Museums, of the Culture Ministry, collaborated with Google Arts & Culture for the largest interactive online exhibition on inventions and discoveries.

Highlights:

- The National Council of Science Museums (NCSM) had collaborated with Google Arts & Culture for 'Once upon a Try': Epic journeys of invention and discovery.
- It's the largest online exhibition about inventions and discoveries ever curated, as an attempt to explore humanity's greatest inventions and discoveries in an interactive online exhibition.
- The online exhibition contains collections, stories and knowledge from over 110 renowned institutions, across 23 countries, highlighting millennia of major breakthroughs and the great minds behind them.

National Council of Science Museums (NCSM):

- The National Council of Science Museums (NCSM) was established in 1978, as a central coordinating agency for national science museums.
- It's an organization jointly under the Ministry of Culture and the Department of Science & Technology (DST). It's considered an autonomous Science & Technology institution.
- NCSM is the world's largest network of science centres and museums that functions under a single administrative umbrella which is primarily engaged in popularizing science and technology. NCSM is formed by the government based on the recommendations of Taskforce formed by the Planning Commission in the early 1970s to assess the activities of the Science Museums.

Mobile Science Exhibition (SCIENCE EXPLORER):

- Mobile Science Exhibition (MSE) programme, was originally launched as a Mobile Science Museum (MSM) in 1965.
- It's mission being 'If the people cannot visit the museum, let the museum visit the people at their doorsteps.'
- It's the largest and the longest-running outreach programme of NCSM.

Significance:

- It has been very successful in:
 - ✓ Supplementing formal education with a non-formal mode of science education

- ✓ Creating a scientific awareness in society and,
- ✓ Nurturing scientific temper and creative potential of the young people in the areas where MSE programmes are conducted.

3. Challakere - ISRO's Astronaut Training Hub

Why in News?

- According to an update from the Indian Space Research Organisation (ISRO), a world-class facility for the training of astronauts will come up in Challakere in Chitradurga district of Karnataka.

Highlights:

- Challakere, about 400 km from Bengaluru, is also where premier scientific establishments have set up adjoining and interactive campuses.
- Called the Science City, it houses facilities of the ISRO, the Defence Research & Development Organisation's Advanced Aeronautical Test Range, the Bhabha Atomic Research Centre and the Indian Institute of Science.
- ISRO has proposed a ₹ 2,700-crore master plan to create top infrastructure that will house its young Human Space Flight Centre (HSFC).
- Currently, HSP [Human Spaceflight Programme] work is split across various centres such as the Vikram Sarabhai Space Centre in Thiruvananthapuram and the U.R. Rao Satellite Centre in Bengaluru. The Institute of Aerospace Medicine of the Air Force has been roped in for the astronauts' selection, basic and final training in Bengaluru.

Significance:

- India pays a substantial sum to use such facilities abroad.
- The first set of four astronaut candidates for the first Gaganyaan mission of 2022 are to train at the Yuri Gagarin Cosmonaut Training Centre for 15 months as candidates for Gaganyaan, in Russia.
- In Moscow, they will learn the skills of life and survival in a narrow capsule, before, during and after travelling away from earth's gravity while managing the travel around earth.
- With the establishment of such facilities in India, future training could be done in India.
- The centre is tasked with pursuing future human space missions, complete mission planning, developing engineering systems for survival and safe return of the crew from space, as also selecting and training the Astronauts.

4. ISRO keeps the hopes high for Space Exploration

Why in News?

- According to the ISRO's chief K Sivan, the Four men from the Indian Air Force have been selected to undergo training for India's first human spaceflight mission 'Gaganyaan'.
- He declared 2020 as the year of Gaganyaan and Chandrayaan-3.

ISRO's Missions:

Gaganyaan:

- ✓ Gaganyaan will be India's first manned space mission with an estimated budget of ₹10,000-crore.
- ✓ India is planning to send three to seven humans (Gaganyatris) into space i.e. in the low earth orbit (LEO) by 2022 for a period of five to seven days.
- ✓ The crewed vehicle is planned to be launched on ISRO's GSLV Mk III.
- ✓ The astronauts will conduct experiments on microgravity in space.
- ✓ India will be fourth nation in the world after USA, Russia and China to launch human spaceflight mission.

Chandrayaan:

- ✓ The Chandrayaan mission was launched in October 2008 and actively operated until August 2009.
- ✓ The mission included a lunar orbiter and an impactor.
- ✓ It was launched using the PSLV-XL rocket from the Satish Dhawan Space Centre located in Sriharikota.

Chandrayaan 2:

- ✓ Chandrayaan 2 mission was a ₹1000-crore ambitious mission of ISRO to explore the South Pole of Moon.
- ✓ It was launched on 22 July 2019 and was expected to have soft landing on the moon on Sep 7, 2019.
- ✓ It suffered partial failure after its communication was lost with mission's lander (Vikram) and rover (Pragyan) due to hard landing over the surface of moon.
- ✓ The South Pole region of Moon is still unexplored, has craters that are cold traps and contain a fossil record of the early Solar System.

Chandrayaan 3:

- ✓ It extends the mission of ISRO to explore the South Pole of Moon after Chandrayaan 2.

- ✓ The launch of the nearly ₹600-crore Chandrayaan-3 is targeted for the end of 2020 or early 2021.
- ✓ Chandrayaan 3 will have lander and rover and will not feature an orbiter of its own.

5. Drosophila

Why in News?

- Pune is set to host the fifth edition of the Asia Pacific Drosophila Research Conference (APDRC5) is being organised in the country for the first time by the Indian Institute of Science Education and Research (IISER).

Drosophila:

- Drosophila is a genus of two-winged flies commonly known as fruit flies that are used in evolutionary and developmental studies.
- It is a genus of flies, belonging to the family Drosophilidae, whose members are often called “small fruit flies” or pomace flies, vinegar flies, or wine flies, a reference to the characteristic of many species to linger around overripe or rotting fruit.
- It is one of the most widely-used and preferred model organisms in biological research across the world for the last 100 years.
- Several discoveries in biology have been made using this. Its genome is entirely sequenced and there is enormous information available about its biochemistry, physiology and Behaviour.

6. Genome of Indian Cobra Sequenced

Why in News?

- A team of Indian researchers and their collaborators abroad have sequenced the genome of the highly poisonous Indian cobra.
- This research may go a long way in reducing mortality and disability from snake bites. This also makes Indian cobra the first among the most venomous four Indian snakes, which are collectively called the **infamous “big four”**, to be genetically mapped.

Highlights:

- The Indian cobra, together with the common krait, Russell’s viper and saw scaled viper, accounts for nearly 46,000 snake bite deaths in the country every year.
- Worldwide, 5.4 million snake bites occur every year, with 2.8 million of them in India. They are responsible for 4,00,000 disabilities globally, of which 1,38,000 are from India.

- Through study, the researchers found that the Indian cobra genome has 19 key toxin genes, primarily expressed in the venom glands of the snake.
- Targeting these toxins using synthetic human antibodies should lead to a safe and effective anti-venom for treating Indian cobra bites.
- Currently, antivenom is produced by immunising horses with extracted snake venom and is based on a process developed over 100 years ago. This process is laborious and suffers from a lack of consistency leading to varying efficacy and serious side-effects.
- Venom is also a great source of drug-like molecules. The Indian cobra genome is no exception and it codes for toxin molecules that can block pain, reduce blood pressure and prevent blood clotting.
- The scientists say that the next step would be to use this genomic blueprint for venom toxins to make recombinant proteins, generate neutralising antibodies and test them in the clinic.
- This high-quality genome will not only be a wonderful resource for understanding the evolution of the medically important snake and its venom repertoire but can also be very useful for the innovation of next generation Recombinant Antivenoms.

7. Goldilocks Zone

Why in News?

- NASA has reported the discovery of an Earth-size planet, named TOI 700 d, orbiting its star in the “goldilocks zone”.

Goldilocks zone:

- A habitable zone, also called the “Goldilocks zone”, is the area around a star where it is not too hot and not too cold for liquid water to exist on the surface of surrounding planets.
- Details Earth is in the Sun’s Goldilocks zone. If Earth were where the dwarf planet Pluto is, all its water would freeze; on the other hand, if Earth were where Mercury is, all its water would boil off.
- When scientists search for the possibility of alien life, any rocky exoplanet in the habitable zone of its star is an exciting find.
- The newest such planet was found by NASA’s Transiting Exoplanet Survey Satellite (TESS) mission, which it launched in 2018.
- Very few such Earth-size planets have been found so far, including some by NASA’s Kepler mission, and this one is the first such discovery by TESS.

- The find was confirmed by the Spitzer Space Telescope, which sharpened the measurements that TESS had made, such as orbital period and size.

New Discovered Planet:

- TOI 700 d measures 20% larger than Earth. It orbits its star once every 37 days and receives an amount of energy that is equivalent to 86% of the energy that the Sun provides to Earth.
- The star, TOI 700, is an “M dwarf” located just over 100 light-years away in the southern constellation Dorado, is roughly 40% of our Sun’s mass and size, and has about half its surface temperature.
- TOI 700 d is the outermost planet, and the only one in the star’s Habitable Zone.

8. H9N2 Virus

Why in News?

- Indian scientists have detected the country’s first case of infection with a rare variant of the virus that causes avian influenza, or bird flu.

Highlights:

- Scientists of the National Institute of Virology (NIV), Pune, have reported avian influenza A(H9N2) virus infection in a 17-month-old boy in Maharashtra.
- The virus was picked up in February 2019 during a community-based surveillance study in 93 villages of Korku tribes in Melghat district of Maharashtra.
- Identification of the first clinical human case of H9N2 virus infection highlights the importance of systemic surveillance in humans and animals to monitor this threat to human health.

H9N2:

- H9N2 is a subtype of the influenza A virus, which causes human influenza as well as bird flu. The H9N2 subtype was isolated for the first time in Wisconsin, US in 1966 from turkey flocks.
- H9N2 viruses are found worldwide in wild birds and are endemic in poultry in many areas. However, they are somewhat neglected.
- With avian influenza viruses circulating in poultry, there is a risk for sporadic infection and small clusters of human cases due to exposure to infected poultry or contaminated environments.

- H9N2 virus infections in humans are rare, but likely under-reported due to typically mild symptoms of the infections. Cases of human infection have been observed in Hong Kong, China, Bangladesh, Pakistan, and Egypt.

9. Coronavirus

Why in News?

- A new virus has been identified by Chinese researchers which is responsible for a new pneumonia-like illness.

Coronavirus:

- Coronaviruses are a specific family of viruses, with some of them causing less-severe damage, such as the common cold, and others causing respiratory and intestinal diseases.
- A coronavirus has many “regularly arranged” protrusions on its surface, because of which the entire virus particle looks like an emperor’s crown, hence the name “coronavirus”.
- Apart from human beings, coronaviruses can affect mammals including pigs, cattle, cats, dogs, martens, camels, hedgehogs and some birds.
- So far, there are four known disease-causing coronaviruses, among which the best known are the SARS coronavirus and the Middle East Respiratory Syndrome (MERS) coronavirus, both of which can cause severe Respiratory Diseases.

10. ‘Virtual Human’ NEON

Why in News?

- NEONs are being called the world’s first artificial humans. They look and behave like real humans, and could develop memories and emotions — though from behind a 4K display.

NEON:

- Star Labs is headed by India-born scientist Pranav Mistry who underlines that what was showcased at CES was the product of just four months’ work.
- The company says NEONs are computationally created virtual humans — the word derives from NEO (new) + humaN.
- For now, the virtual humans can show emotions when manually controlled by their creators.
- But the idea is for NEONs to become intelligent enough to be fully autonomous, showing emotions, learning skills, creating memories, and being intelligent on their own.

- Star Labs thinks they can be “friends, collaborators, and companions”, but all that is a few years away.

How does it work?

- There are two core technologies behind his virtual humans.
- First, there is the proprietary CORE R3 technology that drives the “reality, real time and responsiveness” behind NEONs.
- It is the front-end reality engine that is able to give you that real expression.
- The company claims CORE R3 “leapfrogs in the domains of Behavioral Neural Networks, Evolutionary Generative Intelligence and Computational Reality”, and is “extensively trained” on how humans look, behave and interact.
- But in the end, it is like a rendition engine, converting the mathematical models to look like actual humans.
- The next stage will be SPECTRA, which will complement CORE R3 with the “spectrum of intelligence, learning, emotions and memory”.
- But SPECTRA is still in development, and is not expected before NEONWORLD 2020 later this year.

NEONs Applications:

- NEONs are the interface for technologies and services.
- They could answer queries at a bank, welcome you at a restaurant, or read out the breaking news on television at an unearthly hour.
- This form of virtual assistance would be more effective, for example, while teaching languages, as NEONs will be capable of understanding and sympathizing.

How are they different from Virtual Assistants?

- Virtual Assistants now learn from all the data they are plugged into. NEONs will be limited to what they know and learn.
- Their leaning could potentially be limited to the person they are catering to, and maybe her friends — but not the entire Internet.
- They will not be an interface for you to request a song, rather they will be a friend to speak to and share experiences with.
- Currently, its developer doesn’t want NEONs to have collective memory, or to share data among themselves.

11. Oldest Material on Earth Found Inside Meteorite

Why in News?

- A meteorite that crashed into rural south-eastern Australia in a fireball in 1969 contained the oldest material ever found on Earth, stardust that predated the formation of our solar system by billions of years.

Highlights:

- The oldest of 40 tiny dust grains trapped inside the meteorite fragments retrieved around the town of Murchison in Victoria state dated from about 7 billion years ago, about 2.5 billion years before the sun, Earth and rest of our solar system formed.
- All of the dust specks analysed in the research came from before the solar system's formation - thus known as “presolar grains” - with 60% of them between 4.6 and 4.9 billion years old and the oldest 10% dating to more than 5.6 billion years ago.
- Many of the grains were concentrated at particular time intervals, which provided clues about the rate of star formation in the Milky Way galaxy, and hinting at bursts of stellar births rather than a constant rate.
- Stardust forms in the material ejected from stars and carried by stellar winds, getting blown into interstellar space.
- During the solar system's birth, this dust was incorporated into everything that formed including the planets and the sun but survived intact until now only in asteroids and comets.
- Dust grains floating through space get bombarded by high-energy particles called cosmic rays. These rays break down atoms in the grain into fragments, such as carbon into helium.
- These fragments accumulate over time and their production rate is rather constant. The longer the exposure time to cosmic rays, the more fragments accumulate.
- The researchers counted these fragments in the laboratory, enabling them to calculate the stardust's age.
- Scientists previously had found a presolar grain in the Murchison meteorite that was about 5.5 billion years old, until now the oldest-known solid material on Earth.
- The oldest-known minerals that formed on Earth are found in rock from Australia's Jack Hills that formed 4.4 billion years ago, 100 million years after the planet formed.

12. Breakthrough in Fight against Malaria

Why in News?

- Scientists at the CSIR- Centre for Cellular and Molecular Biology (CCMB) have announced development of an alternative and economic way of gene delivery within the Plasmodium Falciparum cells, responsible for majority of severe cases of malaria and deaths, called the 'Lyse-Reseal' method.

Highlights:

- World Health Organisation (WHO) estimates 3.4 billion people across 92 countries to be at risk of being infected with Plasmodium parasites and suffering from malaria.
- Malaria occurs when Plasmodium parasites grow in the oxygen-carrying Red Blood Cells (RBCs) in the body. A malaria biologist has to cross a four-membrane layer to reach the genes.
- Gene delivery into the target cells is a popular choice to manipulate and study gene functions with the widely used method 'electroporation' where pores are created in the cell membrane using electric field to send desired chemicals like DNA.
- The team working with Plasmodium 'Falciparum' has been able to fill in RBCs by opening them up, a process also called 'lyse', with circular DNA of their choice. The RBCs are then resealed to close the pores and these are infected with Plasmodium 'Falciparum'.
- The parasite goes inside the RBC and passively takes up the DNA from RBC. The DNA eventually ends up in the parasite's nucleus with its own genes.
- The group has shown the technique to be as effective as 'electroporation' with two different Plasmodium 'Falciparum' strains and claim it works with 10 times lesser DNA than what is needed in 'electroporation'.
- The scientific group also demonstrated that RBCs of blood group 'O+' provide the most efficient delivery of DNA into Plasmodium 'Falciparum' in vitro.
- Ease of making genetic alterations in the parasite will help in better understanding the biology of malaria pathogen and, thereby, help in control of the malaria parasite better.

13. Yada Yada virus

Why in News?

- A novel virus detected in Australian mosquitoes has been provisionally named the Yada Yada virus (YYV), after the catchphrase made famous by the American sitcom Seinfeld.

Highlights:

- The Cambridge dictionary defines the phrase Yada Yada as an informal exclamation used to describe boring speech.
- The first known usage of the phrase was in 1967, and it is considered to be the alteration of an earlier word “yatata”, which meant idle chatter. In the Hebrew language, the word “yada” means to “know”.
- When the team of researchers extracted RNA from a large number of mosquitoes in Australia’s Victoria state, they found a new alphavirus, which belonged to a group that includes other alphaviruses such as chikungunya virus and the astern equine encephalitis.
- The novel virus poses no threat to human beings, because it is a part of a group of viruses that only infect mosquitoes. Other viruses in the same group include the Tai forest alphavirus and the Agua Salud alphavirus.
- While the discovery of the virus does not have any direct implications for human beings, in the papers, the authors have mentioned that YYV’s discovery expands the “diversity and geographic range” of mosquito-specific alphavirus complexes, which may help in revealing the origin of the virus and “host switching”.
- Mosquito-specific viruses can help us understand how viruses evolved and can be really useful for vaccine production and diagnostics.

14. Removing Heavy Metals from Water

Why in News?

- Researchers at IIT- Bombay have successfully removed heavy metals such as arsenic, chromium, cadmium and mercury from waste water with very high efficiency.

Highlights:

- The carbon-based nanostructure that the team fabricated shows 80-90% adsorption efficiency for all the four heavy metals studied.
- No electricity is required for the nanostructure to remove heavy metals from water as it allows for gravity-driven purification of the water.
- The nanostructures can be recycled and reused multiple times. While there is an initial drop of about 8% after the first cycle, the efficiency remains constant at 75-85% in the subsequent cycles.
- The carbon nanostructure is able to adsorb the heavy metals in the wide range of pH conditions, pH 2 to 13.

- The nanostructure is obtained through a single-step process of chemical vapour deposition followed by removing the silica template.
- The reason it shows very high adsorption efficiency is its hydrophilic [water-loving nature] nature that allows for extensive and rapid interaction between the heavy metal-containing water and the carbon nanostructure.
- For the four heavy metals to get adsorbed on the nanostructure the water has to be in contact with the nanostructure for at least 32 seconds.
- Since the heavy metals chemically react and bind to the surface of the nanostructure, they do not leach back into the water. They can be recovered by treating the nanostructure with mild acid. The team tested the ability of the structure to adsorb heavy metals in industrial effluent over a range of pH conditions (pH 2-13). The industrial effluent was simulated by mixing 100 ppm of Each Metal.

15. K-4 Missile

Why in News?

- India successfully test-fired the 3,500-km range submarine-launched ballistic missile, K-4. The test was carried out by the DRDO from a submerged pontoon off the Visakhapatnam coast around noon.

K-4:

- K-4 is a nuclear-capable Intermediate-range submarine-launched ballistic missile developed and tested successfully in the month of January 2020 by DRDO.
- The missile has a maximum range of about 3500 km.
- Once inducted, these missiles will be the mainstay of the Arihant class of indigenous ballistic missile nuclear submarines (SSBN).
- It will give India the standoff capability to launch nuclear weapons submerged in Indian waters.

Circular Error Probability:

- India's Circular Error Probability (CEP) is much more sophisticated than Chinese missiles.
- The CEP determines the accuracy of a missile.
- The lower the CEP, the more accurate the missile is.
- There are very few countries which have managed to achieve this technological breakthrough.

INS Arihant:

- The Advanced Technology Project (ATV) began in the 1980s and the first of them, Arihant, was launched in 2009.
- INS Arihant, the first and only operational SSBN is armed with K-15 Sagarika missiles with a range of 750 km.
- Given India's position of 'No-First-Use' (NFU) in launching nuclear weapons, the SSBN is the most dependable platform for a second-strike.
- Because they are powered by nuclear reactors, these submarines can stay underwater indefinitely without the adversary detecting it.
- The other two platforms — land based and air launched are far easier to detect.

16. India wants shifting of Hawaii Telescope

Why in News?

- India, a partner in the construction of one of the largest telescopes in the world, has said it wants the project to be moved out of the proposed site at Mauna Kea.

Highlights:

- The TMT or Thirty Metre Telescope, as it is called, is a joint venture (JV) involving five countries, but the \$2 billion project has been derailed by protests for over a decade. The proposed site is considered sacred to indigenous Hawaiians.
- Protests at the site last year saw scientists unable to access other telescope facilities in Mauna Kea.
- The project has been delayed by nearly five years and should have begun operations by 2025.
- India has committed \$200 million, which is about a tenth of the proposed cost.
- The telescope needs 492 precisely polished mirrors and India is to contribute 83 of them. The next best site to locate the telescope is the Observatorio del Roque de los Muchachos (ORM) on La Palma in the Canary Islands, Spain.
- Hanle, in Ladakh, was also in the running to host the TMT, but lost out to Mauna Kea, which is considered a superior site due to the imaging possibilities it offers, its stable weather, and also because it has the necessary infrastructure to manage telescopes, already being host to several telescopes.
- Canada, the United States, China and Japan are the other and more significant partners in terms of the monetary and infrastructural aspects of the TMT.

- The level of contribution determines the amount of viewing time, or slots, that the member-countries' scientists get on the machine. Thus India, in a given year, stands to get 10% of the available slots and any downtime could reduce the availability.

Thirty Meter Telescope:

- The Thirty Meter Telescope is a new class of extremely large telescopes that will allow us to see deeper into space and observe cosmic objects with unprecedented sensitivity.
- TMT will be three times as wide, with nine times more area, than the largest currently existing visible-light telescope in the world. This will provide unparalleled resolution with TMT images more than 12 times sharper than those from the Hubble Space Telescope.
- The TMT is designed for near-ultraviolet to mid-infrared (0.31 to 28 μm wavelengths) observations, featuring adaptive optics to assist in correcting image blur.
- The TMT will be at the highest altitude of all the proposed ELTs. The telescope has government-level support from several nations.
- TMT will observe the formation and development of the large-scale structures by looking at faint distant galaxies and the intergalactic medium, providing information on the physics of the early universe and the nature of dark matter that are inaccessible using any other techniques.
- TMT will be able to characterize and study the properties of exoplanets leading us closer to finding out if life exists beyond the Earth.

17. Vyom Mitra: ISRO's Half-Humanoid

Why in News?

- ISRO unveiled its first 'woman' astronaut during the event 'Human Spaceflight and Exploration'.

Vyom Mitra:

- The AI-based robotic system is being developed at a robotics lab at the VSSC in Thiruvananthapuram.
- Vyom Mitra will be used for an unmanned flight of ISRO's GSLV III rocket in December 2020, which, along with a second unmanned flight in July 2021.
- This will serve as the test of ISRO's preparedness for its maiden manned space mission, Gaganyaan, being targeted for 2022 to mark 75 years of India's independence.
- Vyommitra, equipped with a head, two arms and a torso, is built to mimic crew activity inside the crew module of Gaganyaan.

- Attaining launch and orbital postures, responding to the environment, generating warnings, replacing carbon dioxide canisters, operating switches, monitoring of the crew module, receiving voice commands, responding via speech (bilingual) are among its functions listed.
- It will have a human-like face, with lips synchronised for movement to mimic speech.
- Once it is fully developed, Vyommitra will be able to use equipment on board the spacecraft's crew module, like safety mechanisms and switches, as well as receive and act on commands sent from Ground Stations.

18. Anti-Satellite Missile (ASAT)

Why in News?

- India showcased its Anti-Satellite (ASAT) missile capability to the world as the ASAT weapon from Mission Shakti was unveiled on Republic Day.

Highlights:

- A DRDO marching contingent displayed the ASAT missile along with a second equipment, the Air Defence Tactical Control Radar (ADTCR).
- Anti-satellite weapons (ASAT) are space weapons designed to incapacitate or destroy satellites for strategic military purposes. Several nations possess operational ASAT systems.
- Although no ASAT system has yet been utilised in warfare, a few nations have shot down their own satellites to demonstrate their ASAT capabilities in a show of force. Only the United States, Russia, China, and India have demonstrated this capability successfully.

Mission Shakti:

- India conducted Mission Shakti, an anti-satellite missile test, from the Dr. A P J Abdul Kalam Island launch complex. This was a technological mission carried out by DRDO.
- The satellite used in the mission was one of India's existing satellites operating in lower orbit.
- The significance of the test is that India has tested and successfully demonstrated its capability to interdict and intercept a satellite in outer space based on complete indigenous technology.
- The capability achieved through the Anti-Satellite missile test provides credible deterrence against threats to our growing space-based assets from long range missiles, and proliferation in the types and numbers of Missiles.

Weaponization of Space:

- The principal international Treaty on space is the 1967 Outer Space Treaty. India is a signatory to this treaty, and ratified it in 1982.
- The Outer Space Treaty prohibits only weapons of mass destruction in outer space, not ordinary weapons.
- India supported UNGA resolution 69/32 on No First Placement of Weapons on Outer Space. Equally, India supports the substantive consideration of the issue of Prevention of an Arms Race in Outer Space (PAROS) in the Conference on Disarmament where it has been on the agenda since 1982.

19. Facial Recognition in Today's World

Why in News?

- Last week, European media network EURACTIV and Politico published a story that said the European Commission is considering a temporary ban on the use of facial recognition technologies in public spaces.

Highlights:

- Two big tech companies, Alphabet and Microsoft, have taken completely different positions on the idea. This comes even as facial recognition technologies are being increasingly adopted by individuals, organisations, and governments.
- European Commission believes that indiscriminate use of facial recognition technologies is a privacy threat, and some regulations are needed so that this does not easily give way to surveillance.
- During the temporary ban period, a sound methodology for assessing the impacts of this technology and possible risk management measures could be identified and developed.

Significance:

- It is increasingly being used for everything: from unlocking your phone to validating your identity, from auto-tagging digital photos to finding missing persons, and from targeted advertising to law enforcement.
- It is also increasingly used for surveillance and can also become problematic in the absence of privacy and data security laws.

Separating benefits from drawbacks:

- Benefits of facial recognition systems can be categorised into three. One, face detection, which could help count the number of people in traffic. Two, facial authentication, which

could help you unlock your phone. Three, facial matching, which could help investigators quickly zero in on suspects.

- Instead of simply banning an entire category of technologies with so many possible applications, including many that are helpful and benign, policymakers should employ precision regulation that applies restrictions and oversight to particular use-cases and end-users where there is greater risk of societal harm.

Current Application Across the Globe:

- The U.S. has recently released guidelines regarding artificial intelligence, and they reportedly point to a light touch when it comes to regulation.
- London has joined the bandwagon, and will use real time facial recognition systems to police the city.
- Closer home, Telangana has recently tested this technology to verify voters in Local Elections.

20. Stem Cell Banking

Why in News?

- Stem cell banking or preservation is the extraction, processing and storage of stem cells, so that they may be used for treatment in the future, when required.

Stem cells:

- Stem cells taken from umbilical cord blood are like those taken from bone marrow, capable of producing all blood cells: red cells, platelets and immune system cells.
- When used, stem cells are first concentrated, and then injected into the patient. Once transfused, they produce new cells of every kind.
- They're capable of producing all types of blood cells: red cells, platelets and immune system cells.
- The stem cells can treat around 70 blood related disorders and genetic disorders including thalassemia, sickle cell anaemia, leukaemia, and immune related disorders.

Harvesting Stem Cells:

- The blood collected from the umbilical cord of the newborn is a rich source of stem cells. This blood is collected and sent to a cord blood bank, where the stem cells are separated, tested, processed, and preserved in liquid nitrogen. Technically, there is no expiry date and these stem cells can be preserved for a lifetime.

Drawbacks:

- The primary disadvantage of cord blood banking is that it isn't a cheap procedure and many families may not be able to afford it.
- The odds that any given child will need their cord blood are only about 1 in 217. So it may prove to be unnecessary expenditure.
- Current research suggests that cord blood can be stored for a maximum of 15 years. New technologies in this field may extend that timeframe in the future, but how that would affect current samples stored is unknown.

21. Most detailed image of Sun's Surface

Why in News?

- A discovery by researchers using photos of Sun's surface from Daniel K. Inouye Solar (DKIS) Telescope in Maui, Hawaii has shown that the surface is made up of boiling plasma, entirely different from Previous Imagination.

Highlights:

- The set of images show a close-up view of the Sun's surface, revealing a gold-coloured cell-like pattern.
- The cell-like structures that appear to be 'boiling' indicate motions that transport heat from the Sun's interior to its surface via convection.
- Scientists believe that the photographs can help measure and understand the Sun's magnetic field. This can help predict disruptive space weather events.
- A better understanding of the solar magnetic field can help increase the current warning time by over 70 times, and help secure power grids and critical infrastructure.
- To unravel the Sun's biggest mysteries, scientists have to not only be able to clearly see these tiny structures from 93 million miles away but very precisely measure their magnetic field strength and direction near the surface and trace the field as it extends out into the million-degree corona, the outer atmosphere of the Sun.
- The Daniel K. Inouye Solar Telescope boasts a 4-metre mirror, the world's largest for a solar telescope, providing the sharpest high-resolution images of the Sun.

4. ECONOMY

1. Patola Saree

Why in News?

- In a historic initiative taken by Khadi and Village Industries Commission (KVIC), a silk processing plant has been set up in Gujarat.

Patola Silk Saree:

- Patola, the trademark Saree of Gujarat, is considered to be very costly and worn only by the Royals or the Aristocrats. It was conferred with a GI tag in 2014.
- Based on their origin, there are essentially two varieties of Patola sarees – the Rajkot Patola and the Patan Patola. Rajkot Patolas are single ikat weaves while Patan Patolas are double ikat weaves.
- A double ikat weave, Patola sarees originated in the town of Patan in Gujarat and is a characteristic weave of the silk weavers of the Salvi caste of Karnataka and Maharashtra, who migrated to Gujarat.
- After the decline of the Solanki Empire, it was a sign of social status amongst Gujarati women. Traditionally, every region in India has had its own unique weave for the Silk Saree. Patola Silk Saree is amongst the top five silk weaves.
- Patola sarees are considered sacred in a number of communities.
- Its immense value is not just because of its intricacy but also because of the tremendous amount of skill and perseverance that goes into making it.

Background:

- The cocoons will be brought from Karnataka and West Bengal and Silk yarn will be processed in house, thus reducing the cost of production and giving a major boost to the sale of famous Gujarati Patola Sarees.
- The sarees are considered to be costly as the raw material silk yarn is purchased from Karnataka or West Bengal, where silk processing units are situated, thus increasing the cost of the fabric manifolds.

Significance:

- It would help cut down the cost of production of silk yarn drastically and increase the sale and availability of raw material for Gujarati Patola Sarees locally.
- It is an effort to generate livelihood and boost sales of Patola Sarees by making silk more readily available at a low cost, for the Patola Saree manufacturers in the nearby areas.

2. Arabica Coffee

Why in News?

- India's Arabica production has hit an all-time low this coffee-picking season.

Coffee Production in India:

- Coffee is grown in three regions of India with Karnataka, Kerala and Tamil Nadu forming the traditional coffee growing region.
- It is followed by the new areas developed in the non-traditional areas of Andhra Pradesh and Orissa in the eastern coast of the country and with a third region comprising the NE states.
- Indian coffee, grown mostly in southern states under monsoon rainfall conditions, is also termed as "Indian monsooned coffee".
- The two well-known species of coffee grown are the Arabica and Robusta.

Coffee in India:

- In the Indian context, coffee growing started with a saint, Baba Budan who, while returning from a pilgrimage to Mecca, smuggled seven coffee beans from Yemen to Mysore in India. He planted them on the Chandragiri Hills now named after the saint as Baba Budan Giri in Chikkamagaluru district of Karnataka.

3. 2nd National GST Conference

Why in News?

- The 2nd National GST Conference was held for streamlining the GST system.

Highlights:

- The 2nd National GST Conference of the Commissioners of State Tax and Chief Commissioners of Central Tax was held under the chairmanship of the Revenue Secretary, Ministry of Finance.
- The conference focused on streamlining the GST system and plugging revenue leakages.
- This was the 2nd edition of the all India conference where both tax administrations came together formally to build synergy and to share their knowledge and best practices with intent to bring about uniformity in tax administrations.

Outcomes of the Conference:

- To constitute a Committee of Centre and State officers to examine and implement quick measures in a given time frame to curb fraudulent refund claims including the inverted tax structure refund claims and evasion of GST.

- Considering fraudulent IGST refund claims, it was explored to link foreign exchange remittances with IGST refunds for risky and new exporters.
- All major cases of fake Input Tax Credit, export/import fraud and fraudulent refunds shall also be compulsorily investigated by the Income Tax Department.
- MoU would be signed among the Central Board of Direct Taxes (CBDT), the Central Board of Indirect Taxes (CBIC) and GSTN to exchange data through API, from CBDT to GSTN and CBIC and vice-versa. It was decided that this data should be shared on a quarterly basis, instead of being shared on a yearly basis.
- To explore access to banking transactions (including bank account details) by GST system, in consultation with RBI and NPCI.
- To share data of cases involving evasion and fraudulent refund detected by CBIC with CBDT and vice versa, so that proper profiling of these fraudsters could be done.
- It was also suggested to provide a single bank account for foreign remittance receipt and refund disbursement. A self-assessment declaration to be prescribed by suitable amendments in GSTR Forms in case of closure of businesses.
- To undertake verification of unmatched input tax credit availed by taxpayers.

4. New Energy Performance Standards for Air Conditioners

Why in News?

- The Central Government in consultation with the Bureau of Energy Efficiency (BEE) has notified new energy performance standards for Room Air Conditioner (RACs).

24 C Default Setting:

- The 24 C default setting has been made mandatory from Jan 1, 2020 for all room air conditioners covered under the ambit of BEE star-labelling program vide this notification.
- Additionally, the Indian Seasonal Energy Efficiency Ratio (ISEER) as per the new standards will range from (3.30 – 5.00) for split and (2.70 – 3.50) for window air conditioners, which will be applicable from 1st January 2021 onwards.
- ISEER is the energy performance index used for Room Air Conditioners (RACs) and its assessment is based on the bin hours defined in ISO 16358.

Voluntary Star Labelling Program:

- BEE launched the voluntary star labelling program for fixed-speed room air conditioners (RACs) in 2006, and this program became mandatory on 12th January 2009.

- Thereafter, in 2015, voluntary star labelling program for inverter room air conditioners was launched and which was made mandatory with effect from 1st January 2018.
- The BEE star labelling program for Room Air Conditioners now covers both fixed and inverter RAC up to a cooling capacity of 10,465 watts (2.97 TR).
- Continual enhancement in performance levels has resulted in substantial energy efficiency improvement of about 43% in the minimum energy performance standards (MEPS) for split units, which are the most popular RACs sold in the market.

BEE:

- BEE is a statutory body under the Ministry of Power, Government of India.
- It is assisted in developing policies and strategies with the primary objective of reducing the energy intensity of the Indian economy.
- BEE coordinates with designated consumers, designated agencies, and other organization to identify and utilize the existing resources and infrastructure, in performing the functions assigned to it under the energy conservation act.

5. Insolvency and Bankruptcy Board of India (Liquidation Process) (Amendment) Regulations, 2020

Why in News?

- The Insolvency and Bankruptcy Board of India (IBBI) amended the Insolvency and Bankruptcy Board of India (Liquidation Process) Regulations, 2016.

Amendments:

- The amendment clarifies that a person, who is not eligible under the Insolvency & Bankruptcy Code (IBC) to submit a resolution plan for insolvency resolution of the corporate debtor, shall not be a party in any manner to a compromise or arrangement of the corporate debtor under section 230 of the Companies Act, 2013.
- It also clarifies that a secured creditor cannot sell or transfer an asset, which is subject to security interest, to any person, who is not eligible under the Code to submit a resolution plan for insolvency resolution of the corporate debtor.
- The amendment provides that a secured creditor, who proceeds to realise its security interest, shall contribute its share of the insolvency resolution process cost, liquidation process cost and workmen's dues, within 90 days of the liquidation commencement date.

- It shall also pay excess of realised value of the asset, which is subject to security interest, over the amount of its claims admitted, within 180 days of the liquidation commencement date.
- Where the secured creditor fails to pay such amounts to the Liquidator within 90 days or 180 days, as the case may be, the asset shall become part of Liquidation Estate.
- The amendment provides that a Liquidator shall deposit the amount of unclaimed dividends, if any, and undistributed proceeds, if any, in a liquidation process along with any income earned thereon into the Corporate Liquidation Account before he submits an application for dissolution of the corporate debtor.
- It also provides a process for a stakeholder to seek withdrawal from the Corporate Liquidation Account.

Insolvency and Bankruptcy Board of India (IBBI):

- The IBBI was formed in 2016 under the IBC.
- It is the regulator responsible for overseeing the insolvency proceedings.
- It is responsible for the implementation of the IBC that consolidates and amends the laws relating to reorganization and insolvency resolution of corporate persons, partnership firms and individuals.
- It has regulatory oversight over:
 - ✓ Insolvency Professionals
 - ✓ Insolvency Professional Agencies
 - ✓ Insolvency Professional Entities
 - ✓ Information Utilities
- **It frames and enforces rules for:**
 - ✓ Corporate insolvency resolution
 - ✓ Corporate liquidation
 - ✓ Individual insolvency resolution
 - ✓ Individual bankruptcy

6. Northeast Gas Grid

Why in News?

- The Cabinet Committee on Economic Affairs (CCEA) approved a Rs. 5,559 crore viability gap funding for the proposed Northeast Gas Grid.

Highlights:

- A viability gap funding of 60% of the project cost has been approved. The quantum of viability gap funding (VGF) would be capped at 60 per cent of estimated project cost and would not be linked with upward capital cost variation.
- This is only the second instance of the government directly funding a gas pipeline.
- The funding support to the gas grid is a part of a broader goal of the government to raise the share of natural gas in the country's energy mix to 15% by 2030 from the current 6.2%.
- In 2016, the government provided a capital grant of 40% of the project cost of the 2,655-km Jagdishpur-Haldia and Bokaro-Dhamra (JHBDPL) gas pipeline project, which GAIL is currently executing.
- GAIL is also laying a 750-km line from Barauni to Guwahati as part of JHBDPL project, which is also known as the Pradhan Mantri Urja Ganga project. This is proposed to be connected to the North-East via the Indradhanush grid.
- All other pipelines in the country have been funded by public or private sector companies.

North-East Natural Gas Pipeline Grid:

- The 1,656-km North-East Natural Gas Pipeline Grid will connect Guwahati in Assam to major cities in the region such as Itanagar, Dimapur, Kohima, Imphal, Aizwal, Agartala, Shillong, Silchar, Gangtok, and Numaligarh.
- The gas pipeline grid will be developed in the eight states of the North-Eastern region — Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura.
- The North-East pipeline grid is to be implemented by Indradhanush Gas Grid, a joint venture of state-owned GAIL India, Indian Oil Corp (IOC), Oil and Natural Gas Corp (ONGC), Oil India Ltd (OIL) and Numaligarh Refinery Ltd (NRL).
- The vision envisages the development of the region by leveraging its hydrocarbon potential, enhancing access to clean fuel and accelerating the growth.

Significance:

- The pipeline will enable the supply of piped cooking gas to households and CNG to automobiles, besides fuel to industry.
- The pipeline grid would ensure reliability and uninterrupted natural gas supplies to the consumers which otherwise gets severely affected due to various reasons in this part of the country.

- The uninterrupted supply of LPG and other value-added products in the region will bring energy security to the people in the area.
- Availability of natural gas across the region is expected to boost industrial growth without impacting the environment and would offer better quality of life to the people in general due to use of cleaner and green fuel.
- It would boost exploration and production of gas in the region and help in early monetisation of natural resources.
- Possibility of installing bottling plants for LPG is in the exploration stage, for reducing Transportation Cost.

7. Gold Hallmarking

Why in News?

- The Union Minister of Consumer Affairs, Food and Public Distribution held a press conference regarding mandatory hallmarking of Gold jewellery & artefacts in India.

Highlights:

- The purpose of making hallmarking mandatory for Gold Jewellery and Artefacts is to ensure that consumers are not cheated while buying gold ornaments and get the purity as marked on the ornaments.
- The purity of Gold will now be in only 3 carat age i.e. 14, 18 and 22 thus corruption is removed.
- This will make it compulsory for all the jewellers selling Gold jewellery and artefacts to register with Bureau of Indian Standards (BIS) and sell only hallmarked Gold jewellery & artefacts.

Bureau of Indian Standards (BIS):

- BIS is the National Standards Body of India established under the Bureau of Indian Standards Act 2016 for the harmonious development of the activities of standardization, marking and quality certification of goods and for related concerns.
- Through standardization, certification and testing, BIS provides safe reliable quality goods, minimises health hazards to consumers, promotes exports and imports substitutes, and controls over the proliferation of varieties, etc.
- The body was formed as the BIS (as a statutory body) in 1986. It was formerly called the Indian Standards Institution (ISI) which was set up in 1946. The 2016 Act positioned it as the National Standards Body.

BIS Activities:

- ✓ Standards Formulation
- ✓ Product Certification Scheme
- ✓ Compulsory Registration Scheme
- ✓ Foreign Manufacturers Certification Scheme
- ✓ Hall Marking Scheme
- ✓ Laboratory Services
- ✓ Laboratory Recognition Scheme
- ✓ Sale of Indian Standards
- ✓ Consumer Affairs Activities
- ✓ Promotional Activities
- ✓ Training Services, National & International level
- ✓ Information Services

8. Assam Inland Water Transport Project

Why in News?

- The Government of India, the Government of Assam and the World Bank have signed a loan agreement of \$88 million for the implementation of the Assam Inland Water Transport Project. The Assam Inland Water Transport Project will help develop a modern, efficient and safe river transport system for the large volume of passengers and cargo carried by the vessels.

Highlights:

- A majority of Assam's ferry routes cross the Brahmaputra, providing a crucial means of transport to thousands of commuters in both the urban and rural areas of the Brahmaputra Valley.
- The Assam Inland Water Transport Project (AIWTP) will help Assam improve the passenger ferry infrastructure and its services and strengthen the capacity of the institutions running the inland water transport.
- Technically better-designed terminals and energy-efficient vessels (both new and retrofitted) will make the ferry services more sustainable with least disruption to nature.
- The Government of Assam has taken on the challenge of modernizing the ferries sector which, though vital to the state, remains largely informal.

- The project will support the Government of Assam's efforts to corporatise its own ferry activities.
- The Assam Shipping Company (ASC) will operate the government ferries and the Assam Ports Company (APC) will provide terminals and terminal services on a common-user basis to both public and private ferry operators.
- Loan of \$88 million from the International Bank for Reconstruction and Development (IBRD) has a final maturity of 14.5 years including a grace period of five years.

Significance:

- The project will improve facilities for people using the ferry services and give special attention to the safety and security of women and girls.
- The terminals will have better access, lighting and signages while the new vessels will allow for individual seats and separate toilets.
- Inland Water Transport is also a more sustainable mode of transport.
- It provides low-carbon and low-cost options when compared to the cost of constructing and maintaining flood-resilient roads and bridges across the long stretches of the Brahmaputra River.

9. APNA UREA – SonaUgle

APNA UREA – SonaUgle:

- The Union Minister for Chemicals and Fertilizers launched the “APNA UREA – SonaUgle” brand of Hindustan Urvarak & Rasayan Limited (HURL).
- HURL is Joint Venture Company promoted by the three Maharatna Companies i.e. Coal India Limited (CIL), NTPC Limited (NTPC) and Indian Oil Corporation Limited (IOCL) as the lead promoters with FCIL and HFCL as other two partners.
- The commissioning of the HURL's three Units in the states of UP, Bihar and Jharkhand will open forward and backward linkages for business activity in the Eastern part of India.
- It will be instrumental in opening new avenues for the generation of income and employment in the Eastern part of our country.

10. Telecommunication Consumers Education and Protection Fund (TCEPF)

Why in News?

- The Telecom Regulatory Authority of India (TRAI) has informed that telecom service providers will need to deposit all unclaimed money of consumers, including excess charges

and security deposit, in the Telecommunication Consumers Education and Protection Fund (TCEPF).

Telecommunication Consumers Education and Protection Fund (TCEPF):

- The TCEPF Regulations, 2007 have been amended to provide the basic framework for depositing unclaimed money of consumers by service providers, maintenance of the TCEPF and other related aspects.
- Any unclaimed / unrefundable amount belonging to consumers in the TCEPF fund will be utilized for the welfare measures of the consumers.
- With this amendment, service providers will deposit any unclaimed consumer money of any form such as excess charges, security deposit, plan charges of failed activations, or any amount belonging to a consumer, which service providers are unable to refund to consumers.

Significance:

- The TRAI observed that there is a need to bring clarity among service providers in depositing money which they are unable to refund to the consumers.
- While some service providers were depositing money only on account of excess billing revealed in the audit, others were depositing unclaimed money such as security deposits and plan charges of Failed Activations.

11. Dedicated Freight Corridor Corporation of India (DFCCIL)

Why in News?

- The 14th Foundation Day of Dedicated Freight Corridor Corporation of India (DFCCIL) was celebrated in New Delhi.

DFCCIL:

- The Dedicated Freight Corridor Corporation of India Limited or DFCCIL is a business establishment operated by the Railways Ministry of the Government of India to work the dedicated freight corridors (DFCs).
- It engages in the planning and development, deployment of monetary resources, building, upkeep and the operation of the DFCs.
- DFCCIL has been assigned the status of 'special purpose vehicle' by the Indian government.
- **Objectives:**

- ✓ To build a corridor with appropriate technology that enables Indian railways to regain its market share of freight transport by creating additional capacity and guaranteeing efficient, reliable, safe and cheaper options for mobility to its customers.
- ✓ To set up Multimodal logistic parks along the DFC to provide complete transport solution to customers.
- ✓ To support the government's initiatives toward ecological sustainability by encouraging users to adopt railways as the most environment-friendly mode for their Transport Requirements.

12. ELECRAMA 2020

Why in News?

- Union Minister of Heavy Industries & Public Enterprises, Environment, Forest and Climate Change and Information & Broadcasting inaugurated ELECRAMA 2020.

ELECRAMA 2020:

- ELECRAMA is the flagship showcase of the Indian electrical industry and a platform to connect the world with the Indian industry in respect of technology, new trends and innovation for the future energy transition.
- Featuring not just equipment & technology, ELECRAMA offers peerless thought leadership platforms for everything electric – from technical conclaves, seminars, conferences to industry summits.
- ELECRAMA over the years emerged as a platform for knowledge-sharing with a strong focus on electric vehicles, Internet of Things (IoT), storage solutions and renewable energy.
- ELECRAMA is supported by the Ministry of Power, Ministry of New and Renewable Energy and Ministry of Heavy Industries and Public Enterprises, Government of India.
- ELECRAMA 2020 will serve as a catalyst to boost the Indian growth story for the Indian industry, MSME and start-ups to understand and experience global trends and Adopting New Technologies.

13. India lags behind in Social Mobility

Why in News?

- The World Economic Forum has come out with its first-ever Global Social Mobility Report, which has ranked India a lowly 72 out of the 82 countries profiled.

Highlights:

- The Nordic economies such as Denmark and Finland top the social mobility rankings while countries like India, Pakistan, Bangladesh and South Africa languish at the bottom. Inequalities have been growing across the world.
- The rise of inequality has not only created massive social unrest but also adversely affected the global consensus on the kind of economic policies that countries follow.
- A good example of this is the rise of trade protectionism across the world over the past few years. Be it the United States or the United Kingdom.
- Several countries have started looking inwards in the hope that greater trade protectionism will help allay the fears and apprehensions of domestic workers.

Social Mobility:

- In economies such as China and India, economic growth can lift entire populations upward in terms of absolute income, but an individual's status in society relative to others remains the same. Many situations exist where, despite high levels of absolute income mobility, relative social mobility remains low.
- The concept of social mobility is much broader than just looking at income inequality. It encompasses several concerns such as:
 - ✓ **Intragenerational Mobility:** The ability for an individual to move between socio-economic classes within their own lifetime.
 - ✓ **Intergenerational Mobility:** The ability for a family group to move up or down the socio-economic ladder across the span of one or more generations.
 - ✓ **Absolute Income Mobility:** The ability for an individual to earn, in real terms, as much as or more than their parents at the same age.
 - ✓ **Absolute Educational Mobility:** The ability for an individual to attain higher education levels than their parents.
 - ✓ **Relative Income Mobility:** How much of an individual's income is determined by their parents' income.
 - ✓ **Relative Educational Mobility:** How much of an individual's educational attainment is determined by their parents' educational attainment.

Importance of Social mobility:

- Research has shown that in high-income countries, there is stagnation at both the bottom and the top end of the Income Distribution.

- For instance, in Denmark or Finland (which rank highest in social mobility index), if Person A's parent earns 100% more than Person Z, it is estimated that the impact on Person A's future income is around 15%, but in the US the impact is far more, about 50% and in China, the impact is roughly 60%.
- Social mobility levels can help us understand both the speed of how long it takes for individuals at the bottom of the scale to catch up with those at the top and how many steps it takes for an individual to move up the ladder in a given period of social mobility.
- It would take a whopping 7 generations for someone born in a low-income family in India to approach mean income level while in Denmark it would only take 2 generations.
- Research also shows that countries with high levels of relative social mobility, such as Finland, Norway or Denmark, exhibit lower levels of income inequality.

Social Mobility Calculation:

- The WEF's Global Social Mobility Index assesses the 82 economies on "10 pillars" spread across the following five key dimensions of social mobility:
 - ✓ Health; Education (access, quality and equity, lifelong learning);
 - ✓ Technology; Work (opportunities, wages, conditions);
 - ✓ Protection and Institutions (social protection and inclusive institutions).

14. Air India Disinvestment

Why in News?

- The government has kicked off the complete disinvestment process of Air India for the second time after it failed to receive a single bid in the first attempt back in 2018.

100% Stake Sale:

- Most significantly, the government will offload 100% of its stake in Air India, compared with 76% put on the block last time.
- The government holding even a minor stake in the airline post disinvestment was seen as a huge negative for any potential buyers.
- The buyer will have to take on Rs 23,286 crore of debt out of a total Rs 60,074 crore.
- Compared with this, in the last attempt, a potential buyer would have to take on Rs 33,392 crore of debt and current liabilities.
- The amount of debt being bundled with the airline in this attempt is towards the aircraft that are being sold off along with the carrier as part of the transaction.
- The working capital and other non-aircraft debt will be retained by the government.

Employees:

- All present employees of Air India totalling as many as 9,617 permanent employees, including pilots and cabin crew, will go to the new buyer.
- The buyer should retain these employees for a certain lock-in period, which would be divulged in the share purchasing agreement. The government is exploring different modalities to ensure that the retired staff members have a medical cover.

Eligibility:

- Any private or public limited company, a corporate body and a fund with a net value of ₹3,500 crores will be eligible to bid.
- The present offer involves a clean exit by the government and complete transfer to the private player. This would ensure the private players enough freedom to run the state of affairs in the company without many regulations.
- The bid document also states that the existing FDI policy, which allows a foreign airline to buy up to 49% in Air India, will continue to apply.

Air India's Assets:

- The new owner will be taking on a fleet of 121 aircraft in Air India's fleet and 25 planes in Air India Express' fleet.
- These exclude the four Boeing 747-400 jumbojet aircraft that the airline plans to transfer to its subsidiary Alliance Air, which is not a part of the current transaction.
- However, like the last attempt, the properties currently in use by Air India, including the Nariman Point building and the company's headquarters near Connaught Place in New Delhi will be retained by the Government.

Pro's of Air India:

- Air India has a 50.64% market share in international traffic among Indian carriers.
- The government is hopeful of attracting investors with the new sale criteria, coupled with the main benefits of the airline, which are prime slots in capacity-constrained airports across the world.
- However, any potential investor is also expected to look at the size of the airline's operations with reference to what those operations generate.
- For example, both Air India and Singapore Airlines operate with a fleet of 121 aircraft, but in 2018-19 Air India posted a net loss of Rs 8,556 crore, whereas Singapore Airlines reported a net profit of Singapore \$ 779.1 million (approx Rs 4,100 crore).

15. Organised Manufacturing to Boost Job Growth

Why in News?

- There have been several reports, both official and by independent academics, that have painted a dark picture on the jobs front. A 2017-18 National Sample Survey Office's (NSSO) survey pegged unemployment at a 45-year high.
- It has been suggested that India's unemployment woes can only be solved by boosting the manufacturing sector.

Highlights:

- It has been argued that between the three broad sectors of the economy- agriculture, industry and services – it is the industry sector, and within industry, the manufacturing sector that has the highest potential to absorb the surplus labour in the economy. Agriculture, which engages almost half the Indian workforce, does not grow fast enough and is, as such, not remunerative enough to provide gainful employment to the millions who join India's workforce each year.
- Services is a fast-growing sector and pays well but it places far greater demands on job seekers in terms of skills and education. Often, the rural millions looking for a job find themselves inadequate in terms of delivering in the services sector.
- Research shows that the employment elasticity, the ability to create new jobs with every additional increase in a sector's growth, of the manufacturing sector is the highest.
- Both UPA and NDA governments have tried to focus on boosting the growth in the manufacturing sector. For instance, in 2011, UPA came out with a new National Manufacturing Policy that aimed at raising the share of the manufacturing sector to 25% of the GDP by 2022.
- The NDA too unveiled the Make in India initiative that focussed using manufacturing as the main platform to create jobs.
- Despite such a focussed stand right through the past decade, manufacturing's share is still under 17% of the GDP and the jobs situation in the country has only got worse.

The Current Situation:

- An analysis of the Indian manufacturing sector shows that manufacturing units in the organised sector are becoming more capital intensive, that is the capital-to-labour ratio is increasing. In other words, instead of increasing the number of workers in a unit, owners are choosing to increase the amount of capital.

- This trend holds true across the board including those sectors such as textiles and leather products that are considered “labour-intensive” and most capable of creating jobs and soaking up surplus labour.

Issues that needs to be addressed:

- Why are manufacturing owners increasingly preferring to substitute labour with capital? It is important to note that they continue to do so even when the return on capital is falling.
- If this is the trend, how reasonable is it to assume that boosting manufacturing growth will create more jobs for the Indian youth.
- To what extent the lack of significant labour reform is holding back manufacturing from achieving its potential to Create Jobs.

16. Indian Railways opens its 1st waste-to-energy plant

Why in News?

- The East Coast Railways commissioned the first waste-to-energy plant of Railways sector of India.
- The plant, a patented technology called Polycrack, is first-of-its-kind in the Indian Railways and fourth in the country.
- It converts multiple feed stocks into hydrocarbon liquid fuels, gas, carbon and water.

Polycrack Technology:

- Polycrack Technology is the world’s very first patented heterogeneous catalytic process which converts multiple feedstocks into hydrocarbon liquid fuels, gas, carbon as well as water.
- In Polycrack Technology, waste is processed and reformed in 24 hours.
- The technology involves de-polmerization, cracking, reforming, scrubbing, particle filtration and rapid quenching.
- The waste generated will become the feeder material for the waste to energy plant.
- The energy which will be produced at the plant, will be in the form of light diesel oil and this oil will be used to light furnaces.
- The plant, having a capacity of 500 kg per batch can be fed with all kinds of existing plastic, Petroleum sludge, Un segregated MSW with moisture up to 50 per cent, E-waste, Automobile fluff, Organic waste including bamboo, garden waste, Jathropa fruit and palm bunch.

Significance:

- The major benefit of the method is that it does not require pre-segregation. The waste as collected from the source, can be directly fed into the polycrack plant.
- The plant has high tolerance to moisture hence drying of the waste after treatment, is not required.
- The waste is processed in the plant and reformed within a period of 24 hours
- The biological decomposition is not allowed as the waste is treated in the plant as it is received.
- All the constituents are converted to valuable energy therefore, making it a zero-discharge process through the plant
- The gas generated in the process of the plant is reused in order to provide energy to the system, hence making it self-reliant and self-sufficient for its energy requirements. This also brings down the operating cost of the plant.
- The plant does not cause atmospheric emission during the process unlike the other conventional methods except for the combustion of gases which have pollutants less than the prescribed norms across the world.

17. Economic Survey and its Importance

Why in News?

- One day before the Union budget, the Chief Economic Adviser (CEA) of the country releases the Economic Survey. The Economic Survey for 2019-2020 will be tabled in Parliament on January 31.

Highlights:

- The Economic Survey is a report the government presents on the state of the economy in the past one year, the key challenges it anticipates, and their possible solutions.
- The document is prepared by the Economic Division of the Department of Economic Affairs (DEA) under the guidance of the CEA, currently Dr Krishnamurthy Subramanian.
- For the past few years, the Economic Survey has been presented in two volumes. For example, in 2018-19, while Volume 1 focussed on research and analysis of the challenges facing the Indian economy, Volume 2 gave a more detailed review of the financial year, covering all the major sectors of the economy.

Importance:

- The Economic Survey is a crucial document as it provides a detailed, official version of the government's take on the country's economic condition. It can also be used to highlight some key concerns or areas of focus.
- The government is not constitutionally bound to present the Economic Survey or to follow the recommendations that are made in it. But while the Centre is not obliged to present the Survey at all, it is tabled because of the significance it holds.

Expectations from the 2020 Survey:

- The Economic Survey ahead of the Union Budget is expected to offer key insights into the path ahead for the government to revive growth.
- The Survey is expected to shed light on the crucial gaps that the Budget will aim to fill in terms of unemployment, private investment, and a slump in consumption.
- The dilemma of remaining fixated on deficit targets or making a concerted push towards more expenditure to kickstart growth is one of the key challenges the government is facing.

18. TERI's World Sustainable Development Summit 2020

Why in News?

- The Minister of Petroleum and Natural Gas & Steel Shri Dharmendra Pradhan delivered the keynote address at the TERI's World Sustainable Development Summit 2020 on 'Energy Future Road Map'.

Highlights:

- India will continue to lead the Global Sustainable Energy Agenda.
- India will remain cognizant of the need to root economic development firmly to achieve the 2030 UN Sustainable Development Goals and commitments made at COP 21.
- The Minister commented that India is now the third-largest energy consumer after the US and China.
- With the energy demand increased to 882 million tonnes of oil equivalent (Mtoe) in 2017, the per capita consumption of energy is still 30% of the global average.
- The country's energy consumption is projected to grow at 4.2 percent per annum up to 2035.
- India's share of the total global primary energy demand is set to roughly double to about 11 percent by 2040, driven by strong economic development.

- Despite the country's system-wide energy transition measures, crude oil would continue to play a critical role at this stage of development in meeting the country's energy requirements.
- The Government has set out a road map for reducing India's crude oil imports by 10% by 2022.
- He said that the country is working towards transformation to a gas-based economy, tapping into indigenously produced biofuels, apart from adopting renewable energy and energy efficiency measures, to achieve the much-needed carbon reductions.
- The Minister also noted that the decarbonisation of the energy sector is picking up momentum in India.
- He also stated that the government is working to improve energy efficiency and productivity, demand substitution, improving refinery processes and promotion of bio and alternate fuels.
- India is enhancing collaboration with countries such as Brazil and the US, to improve blending technologies in the transport sector.
- To reduce vehicular pollution, BS VI quality fuel, equivalent to Euro 6 standard, will be supplied in the entire country from 1 April 2020.
- Given the abundance of biomass in the country, the use of Compressed Bio-Gas (CBG) will be promoted in a big way in automotive, industrial and commercial uses in the coming years.

TERI's World Sustainable Development Summit 2020:

- The World Sustainable Development Summit (WSDS) is the annual flagship event of The Energy and Resources Institute (TERI).
- Started in 2001, the Summit has become a focal point for leaders and stakeholders across the world to bridge thought and action for sustainable development.
- The Summit series has emerged as the premier international event on sustainability which focusses on the global future, but with an eye on the actions in the developing world which could bend our common future.
- The WSDS has continued the legacy of the erstwhile Delhi Sustainable Development Summit (DSDS) which was initiated in 2001 with the aim of making 'sustainable development' a globally shared goal.
- **WSDS 2020 Theme: "Towards 2030: Making the Decade Count"**

The Energy and Resources Institute – TERI:

- TERI is a leading think tank dedicated to conducting research for the sustainable development of India and the Global South.
- TERI was established in 1974 as an information centre on energy issues. However, over the following decades, it made a mark as a research institute, whose policy and technology solutions transformed people's lives and the environment.
- It is located in New Delhi.



5. GEOGRAPHY & ENVIRONMENT

1. India records less than 100 Tiger Deaths for the First Time in Three Years

Why in News?

- According to data from the Ministry of Environment, Forest and Climate Change (MoEFCC), for the first time in the past three years, the number of tiger deaths in a year in the country has been less than 100.

Highlights:

- In 2019, there were 84 cases of tiger deaths in the country and 11 cases of seizures (in which a tiger is presumed dead on the basis of body parts seized by authorities). Both put together, the number of tiger deaths was 95.
- The data on tiger mortality also confirms 22 cases of poaching in the country and one case of tiger poisoning in 2019.
 - ✓ In 2018, the number of tiger deaths recorded was 100 (93 mortalities and seven seizures).
 - ✓ In 2017, the number of tiger deaths was 115 (98 mortalities and 17 seizures).
 - ✓ In 2016, it was 122 (101 mortalities and 21 seizures).
- Madhya Pradesh, which has the highest number of tigers in the country (526, as per the last census), has recorded the most number of cases of tiger deaths, with 31 tiger deaths reported from the central Indian State in 2019.
- It is followed by Maharashtra, which reported 18 deaths.
- Karnataka, another State with high tiger population, recorded 12 deaths, and Uttarakhand recorded ten deaths.
- Tamil Nadu recorded seven cases of tiger deaths.

What Reduced the Death Toll?

- The reduced numbers of tiger mortalities are because of surveillance, good management of Tiger Reserves and a lot of awareness and education programmes on tiger conservation.
- M-STriPES (Monitoring System for Tigers-Intensive Protection & Ecological Status) patrolling app was deployed and used in every Tiger Reserve.

2. *Senna spectabilis*

Why in News?

- The Kerala Forest Department is planning to adopt steps to arrest the rampant growth of invasive plants, especially *Senna spectabilis*, in the forest areas of the Nilgiri Biosphere Reserve (NBR).

Senna Spectabilis:

- The *Senna spectabilis* species was planted as avenue trees in Wayanad. The vayal ecosystem (marshy land) of the forest area now has this plant in large numbers.
- The spread is posing a major threat to the forest areas of the reserve, owing to its quick growth and coppicing character.
- The tree species was found in nearly 10 sq km area of the 344.44 sq km sanctuary around five years ago. The plant has started to invade the adjacent Bandipur and Nagarhole tiger reserves in Karnataka and the Mudumalai tiger reserve in Tamil Nadu.
- Now, it had invaded to more than 50 sq km of the sanctuary Wayanad WLS.
- A recent study of the Ferns Nature Conservation Society recorded the presence of the plant in 78.91 sq km area of the sanctuary.

Impact:

- An adult tree grows up to 15 to 20 metres in a short period of time and every year distributes thousands of seeds after gregarious flowering.
- The thick foliage arrests the growth of other indigenous tree and grass species and causes food shortage for the wildlife population, especially herbivores.
- Moreover, wildlife will not feed on the leaf of the trees as it is not palatable for them.
- The allelochemicals produced by this plant adversely affect the germination and growth of the Native Species.

3. Forest Fires

Why in News?

- About 21.40% of forest cover in India is prone to fires, with forests in the north-eastern region and central India being the most vulnerable, the 2019 report by the Forest Survey of India (FSI) has said.

Findings:

- The finding has emerged from a study carried out by the FSI along forest fire points identified across the country from 2004 to 2017.

- The forest fire points (FFP) identified during the 13 years add up to 2,77,758. They were analysed using a moderate resolution imaging spectroradiometer (MODIS) by overlaying the points coverage over the grid coverage of 5 km x 5 km.

Highlights:

- Extremely fire prone areas account for 3.89% of total forest cover, very highly fire prone areas account for 6.01% and highly fire prone areas for 11.50%. Together, the three categories come to 21.40 % of forest cover.
- The total number of alerts issued for each state based on MODIS data from November 2018 to June 2019 were 29,547 and interestingly, Mizoram, a small State, recorded the highest number of fire alerts (2,795). The seven States of the north-eastern region accounted for 10,210 fire alerts, which make up about one-third of alerts in the country.
- While the overall green cover has increased in the country, the forest cover in the north-east — particularly in Mizoram, Arunachal Pradesh and Nagaland — has decreased, the fires could be one of the causes.
- Central Indian States also recorded a high number of forest fire alerts, with Madhya Pradesh accounting for 2,723 alerts; Maharashtra 2,516; Odisha 2,213 and Chattisgarh 1,008 alerts between November 2018 to June 2019. The reasons for fires here are manmade, particularly in cases where people visit forests and leave burning bidis, cigarette stubs or other inflammable materials. In cases of natural reasons, the scientist pointed to thunderstorms as the most likely cause.
- The FSI report states that uncontrolled forest fires can lead to significant loss of cover. “Studies suggest that climate change influences forest fire frequency and intensity, resulting in forests becoming Increasingly Inflammable

Reasons for Forest fires in North East:

- One of the major reasons for forest fires in the north-east is slash-and-burn cultivation, commonly called jhoom or jhum cultivation. The fires happen between the months of January and March. The north-east has tropical evergreen forests and, unlike the dry deciduous forests of central India, these are not likely to catch fire easily.

4. Turtle Rehab Centre in Bhagalpur, Bihar

Why in News?

- A first-of-its-kind rehabilitation centre for freshwater turtles will be inaugurated in Bihar’s Bhagalpur forest division in January 2020.

Highlights:

- The centre, spread over half a hectare, will be able to shelter 500 turtles at a time.
- Earlier, rescued turtles were released into rivers without much treatment in the absence of any facility.
- In the rehab centre they will be properly monitored before being released in their natural habitat.
- The need to build such a centre was felt after several turtles were found severely wounded and sick when rescued from smuggles by rescue teams.
- This centre will play a significant role in treating these animals and their proper upkeep before being returned to their natural habitat.
- Eastern Bihar has been an ideal breeding ground for turtles.
- In Bhagalpur, the flow of water in the Ganga is ample. Also, there are many sandbanks in the middle of the river, which are ideal breeding ground for turtles.

Significance:

- According to environmentalists, the turtles play a significant role in the river by scavenging dead organic materials and diseased fish.
- They control fish population by their predation and control aquatic plants and weeds.
- They are also described as indicators of healthy aquatic ecosystems.

Threats:

- According to a recent study conducted by Traffic India, around 11,000 turtles are being smuggled in India every year. In the past 10 years, as many as 110,000 turtles have been traded.
- These species are now under severe threats due to habitat fragmentation and loss through dams and barrages, pollution, illegal poaching, accidental drowning through fishing nets and threats to their nesting habitats etc.
- The turtles have come under serious threat primarily for two reasons – food and the flourishing pet trade.
- Turtles are being frequently targeted for meat due to the prevailing belief that it gives an energy boost and keeps various diseases away.

Operation Save Kurma:

- It is a periodic species-specific operation on turtles conducted by Wildlife Crimes Control Bureau since 2017.

- Under this, a total of 15,739 live turtles were recovered from 45 suspects, having inter-state linkages.
- It helped the enforcement agencies to focus on the existing trade routes and major trade hubs in the country, which will be continued in future.

5. Miyawaki Forests

Why in News?

- Kerala Government's move to implement the concept of Miyawaki forests in more areas.

Highlights:

- The highly successful technique of Miyawaki forests has been adopted by individuals in the State to increase the green cover in urban and semi-urban areas.
- Following the success by individual initiatives, the Kerala government has decided to employ the Miyawaki method of afforestation to add a green cover on government office premises, residential complexes, school premises, and puramboke land in Kerala.
- The Forest Department would be the nodal agency in the State.
- To take the initiative forward, each department has been asked to nominate nodal officers at the State and district levels and issue formal orders on the initiative.
- 'Miyawaki forests' is a highly successful technique, pioneered by Japanese botanist Akira Miyawaki.
- By promoting natural vegetation on land destroyed by natural calamities and due to human activity along the Japanese coastline, Miyawaki managed to raise mini-forests.
- The concept involves raising indigenous and native trees in dense plantations mimicking forest settings. It involves the preparation of the substrate if the land involved is much degraded. It promotes natural vegetation on degraded land.

Significance:

- The Miyawaki method of afforestation has revolutionised the concept of urban afforestation by turning backyards into mini-forests. This concept has helped increase green cover in urban areas. It will help increase the green cover in India and also help meet India's pledge in the Paris Climate Deal, which involved increasing carbon sequestration in India. The Miyawaki method evolved by promoting natural vegetation on land destroyed by natural calamities and due to human activity along the Japanese coastline. The replication of the model across Kerala, which has suffered floods, landslips and soil erosion, assumes significance given the Rebuild Kerala initiative.

6. Snow and Avalanche Study Establishment (SASE)

Why in News?

- Snow and Avalanche Study Establishment (SASE) has issued an Avalanche warning to Leh in Ladakh region.

SASE:

- SASE is a laboratory of the Defence Research and Development Organization (DRDO)
- It is located near Manali, Himachal Pradesh.
- Its primary function is research in the field of snow and avalanches to provide avalanche control measures and forecasting support to Armed forces.
- Leh is important as it has two passes namely Chang La and Khardung La with world's highest motorable roads through them with several avalanche-prone zones.
- Its utility is also meant for the soldiers in the world's highest battle field Siachen, in the region.

7. 2019 was 7th Warmest since 1901

Why in News?

- The year 2019 that went by was the 7th warmest since record-keeping commenced in 1901. However, the rise in average temperatures over India in 2019 was the lowest since 2016.

Highlights:

- During the year, the annual mean surface air temperature, averaged over the country, was +0.36°C above average.
- The average is defined as the mean temperature from 1980-2010.
- The highest warming observed over India was during 2016 or 0.71°C above the mean. 2018, which was the 6th warmest in India, was 0.41°C, and 2017 was 0.55°C warmer, than the average.
- According to the World Meteorological Organisation, the rise in global mean surface temperature during 2019 (January to October) was +1.10°C.
- The main contributors to the warming this year were temperatures in the pre-monsoon (March-May) and monsoon seasons (June-September).
- 2019 was also characterised by unusually high rainfall, which was 9% over what is normal for a year which was due to monsoon rains (June-September) being 10% over its normal, and the northeast monsoon rains being 9% over its normal.

- During 2019, eight cyclonic storms formed over the Indian seas, with the Arabian Sea contributing five out of these eight cyclones against the normal of one per year. This was a phenomenon not seen in India since 1902.
- This was, meteorologists said, due to a strong Indian Ocean Dipole, or an IOD, which cyclically heats the West Indian Ocean that stimulated cyclone formation over the Arabian Sea.

8. Re-grassing after Mining

Why in News?

- A Bench led by the Chief Justice of India S.A. Bobde ordered the government to include re-grassing of mined areas as a mandatory condition in every mining lease, environmental clearance and mining plan across the country.
- The Supreme Court has ordered that mining lease holders should be held responsible for re-grassing mined areas, so that biodiversity gets a second chance in these scarred landscapes.

Highlights:

- Environmental issues caused by mining include erosion, formation of sinkholes, loss of biodiversity, and contamination of soil, groundwater and surface water by chemicals from mining processes, and the effects persist for years.
- “An area which is mined results in complete elimination of grass, which in turn denies fodder to the herbivores.
- The only solution can be re-grassing of such mined areas. It is not in dispute that re-grassing technology is available in this country,” Chief Justice Bobde said.

Suggestions:

- The court asserted that the area which has been mined should be restored so that grass and other vegetation, including trees, can grow in the mining area for the benefit of animals.
- The court opined that it can be achieved by directing the Union of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna, etc.

- The Bench also directed the government to devise methods to ensure compliance by mining lease holders.
- The cost of re-grassing the mined area and wherever damage was caused, would be entirely borne by the licence holder.
- The mandatory re-grassing would be in addition to the other conditions imposed on the licence holder in the mine closure plan, to restore biodiversity.

9. Species rich forests offer Stable Carbon Capture

Why in News?

- An international team of researchers has shown that carbon storage was highest in species-rich evergreen forest.
- The team Spent over six months conducting surveys inside Anamalai Tiger Reserve and using satellite data from multiple locations in the Western Ghats.

Highlights:

- The research adds that the rate of carbon capture was more stable across years in forests than in plantations, and carbon capture by forests was more resilient to drought.
- The study was done in natural evergreen and deciduous forests, and in teak and eucalyptus plantations.
- The studied eucalyptus plantations had comparatively lower carbon storage, while teak plantations stored nearly as much carbon as deciduous forests.
- The team identified the trees, measured their girth and height in 250 square plots inside the Anamalai Tiger Reserve, and used the measurements to estimate carbon storage in different forests and plantation types.
- They then used satellite data from Parambikulam Tiger Reserve, Rajiv Gandhi Tiger Reserve, Wayanad Wildlife Sanctuary and Bhadra Tiger Reserve, along with Anamalai to assess the rate of carbon capture and how they varied across years.
- Annual rainfall and stressors like drought were all taken into consideration for the study. The storage in teak and eucalyptus plantations was 43% and 55% less, respectively.
- The researchers also found that the rates of carbon capture remained nearly the same year after year in natural forests compared with plantations.
- The findings suggest that protecting and regenerating natural forests comprising a diverse mix of native tree species is more reliable in the long term than raising monoculture or species-poor plantations as a strategy for mitigating climate change.

- Species-rich forests are beneficial for biodiversity as they also provide habitat to many other components like insects, birds, etc. Previous studies have shown that species-rich forests are also resistant to diseases.
- They also added that the ability to regenerate the seeds differ across species and so a multi-species forest would likely show greater resilience in case of a fire.

Anamalai Tiger Reserve:

- Anaimalai Tiger Reserve, earlier known as Indira Gandhi Wildlife Sanctuary and National Park and previously as Anaimalai Wildlife Sanctuary, is a protected area located in the Anaimalai Hills of Pollachi and Valparai taluks of Coimbatore District and Udumalaipettai taluk in Tiruppur District, Tamil Nadu.
- Major reservoirs like Parambikulam Reservoir, Aliyar Reservoir, Thirumurthi Reservoir, Upper Aliyar Reservoir, Kadambarai, Sholayar Dam and Amaravathi Dam are fed by the perennial rivers which originate from the Sanctuary.
- The area has significant anthropological diversity with more than 4600 Adivasi people from six tribes of indigenous people living in 34 settlements.
- The tribes are the Kadars, Malasars, Malaimalasar s, Pulaiyars, Muduvars and the Eravallan (Eravalar). The diverse topography and rainfall gradient allow a wide variety of vegetation comprising a mix of natural and man-made habitats.
- The former includes wet evergreen forest and semi-evergreen forest, montane shola-grassland, moist deciduous, dry deciduous, thorn forests and marshes.
- Tropical montane forests occur at higher elevations and are interspersed with montane grasslands, forming the shola-grassland complex.

10. New method to estimate melting of debris covered Himalayan Glaciers

Why in News?

- A study of the Satopanth glacier in order to model the melting of debris-covered glaciers has been carried out by a group of Indian researchers.
- Their new method gives a better estimate of the glacier's melting than existing ones.

Highlights:

- Studying debris-laden Himalayan glaciers is important from the point of view of how climate change affects them.
- About 20% of Himalayan glaciers are debris-laden, and their dynamics are very different from the ones without debris cover.

- In glaciers without a debris cover, the rate of melting increases as the elevation decreases. However, in glaciers covered with debris, the thick cover partially insulates the glacier from the warm exterior and thereby slows down the melting.
- The thickness of the debris cover, by and large, increases as the glacier flows down.
- This works against the general trend that the lower the elevation, the higher the rate of melting.
- They computed the sub-debris melting of the glacier by interpolating the collected data as a function of thickness of the debris and averaging over debris thickness distribution over different parts of the glacier.
- The new method introduced by the group worked better at estimating the dynamics of the glacier than the conventional method.

Satopanth Glacier:

- Satopanth glacier is located in Garhwal in Central Himalaya, in Uttarakhand. It is the origin of the river Alaknanda, one of the two main tributaries of the Ganga.
- The other tributary is Bhagirathi, which originates from the Gangotri glacier. These two rivers join at Devprayag, around 70 km upstream of Rishikesh. Downstream of Devprayag, the river is called Ganga.

11. CRZ rules

Why in News?

- The last of the four illegal apartment complexes in Maradu, Kerala, was razed by controlled implosion, marking the completion of the demolition drive of the waterfront Highrises.

Highlights:

- The razing of the four luxury apartments was ordered by the Supreme Court in May, for breaching Coastal Regulation Zone (CRZ) norms.
- In India, the Coastal Regulation Zone (CRZ) Rules govern human and industrial activity close to the coastline, in order to protect the fragile ecosystems near the sea.
- They restrict certain kinds of activities, like large constructions, setting up of new industries, storage or disposal of hazardous material, mining, reclamation and bunding within a certain distance from the coastline.
- In all Rules, the regulation zone has been defined as the area up to 500 m from the high-tide line.

- The restrictions depend on criteria such as the population of the area, the ecological sensitivity, the distance from the shore, and whether the area had been designated as a natural park or wildlife zone.
- For CRZ-III (Rural) areas, two separate categories have been stipulated. In the densely populated rural areas (CRZ-IIIA) with a population density of 2,161 per sq km as per the 2011 Census, the no-development zone is 50 m from the high-tide level, as against the 200 m stipulated earlier.
- CRZ-IIIB category (rural areas with population density below 2,161 per sq km) areas continue to have a no-development zone extending up to 200 m from the high-tide line.
- The CRZ Rules are made by the Union environment ministry and implementation is to be ensured by state governments through their Coastal Zone Management Authorities.

CRZ Rules 2018:

- Temporary tourism facilities such as shacks, toilet blocks, change rooms, drinking water facilities etc. have now been permitted in Beaches. Such temporary tourism facilities are also now permissible in the "No Development Zone" (NDZ) of the CRZ-III areas as per the Notification.
- The procedure for CRZ clearances has been streamlined. Only projects/activities, which are located in the CRZ-I (Ecologically Sensitive Areas) and CRZ IV (area covered between Low Tide Line and 12 Nautical Miles seaward) shall be dealt with for CRZ clearance by the Ministry of Environment, Forest and Climate Change. The powers for clearances with respect to CRZ-II and III have been delegated at the State level with necessary guidance.
- For islands close to the main land coast and for all Backwater Islands in the main land, in wake of space limitations and unique geography of such regions, bringing uniformity in treatment of such regions, NDZ of 20 m has been stipulated.
- In order to address pollution in Coastal areas treatment facilities have been made permissible activities in CRZ-I B area subject to necessary safeguards.

12. Philippines' Taal volcano

Why in News?

- Philippines authorities have urged a "total evacuation" of nearly half a million people near the capital Manila, after a volcano spewed ash up to nine miles into the air, prompting warnings of a possible "explosive eruption."

Highlights:

- The volcano is not actually very big but it's considered among the world most dangerous, owing to the number of people that live in its immediate vicinity.
- Taal Volcano The Taal Volcano is located about 37 miles (60 kilometers) south of the capital Manila on the island of Luzon and is one of the country's most active.
- All of the eruptions are concentrated on Volcano Island, an island near the middle of Taal Lake.
- The lake partially fills Taal Caldera, which was formed by prehistoric eruptions. The volcano was designated a Decade Volcano, worthy of close study to prevent future natural disasters.
- All volcanoes of the Philippines are part of the Pacific Ring of Fire.

Other active volcanoes of Philippines:

- ✓ Mt Mayon Volcano
- ✓ Mt Pinatubo
- ✓ Mt Hibok-Hibok
- ✓ Mt Bulusan
- ✓ Mt Kanlaon

13. New Monsoon dates to be Announced

Why in News?

- The Earth Sciences Secretary has announced that the India Meteorological Department (IMD) has decided to revise the normal onset and withdrawal dates for the monsoon in some parts of the country from this year.

Highlights:

- The four-month southwest monsoon season, which brings as much as 70 per cent of the country's annual rainfall, officially begins on June 1, with the onset over Kerala, and ends on September 30.
- The monsoon takes about a month and half after onset on the Kerala coast to cover the entire country and about a month, beginning from the north-western parts of the country on September 1, to withdraw completely.
- Although the June 1 date for the onset of the monsoon on the Kerala coast is unlikely to be changed, the dates for onset in many other parts of the country are expected to be revised.

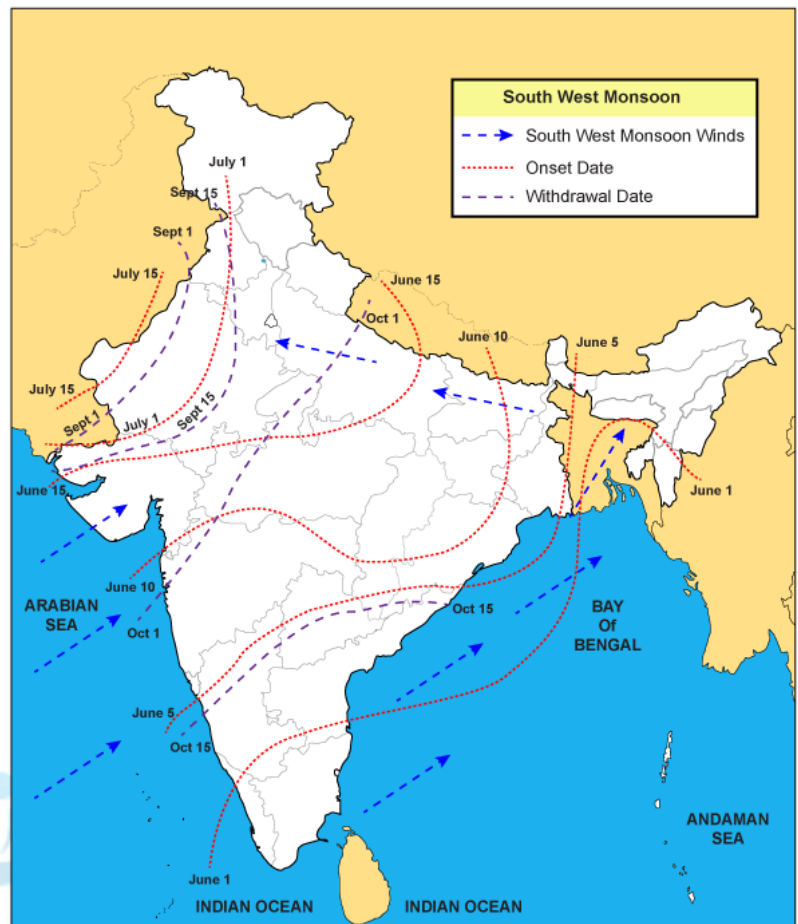
- Adjustments are likely to be made for many other parts of the country as well. Similar changes are expected in the withdrawal dates.
- Effectively, the monsoon is now expected to have later arrival and withdrawal dates in most parts of the country.

Reason for Changes:

- The main reason for the revision in the normal dates is the changes in precipitation patterns that have been taking place over the last many years.
- In the last 13 years, for example, only once has the onset over the Kerala coast happened on June 1. While two or three days of earlier or later onset falls within the yearly variability, in several years the onset happened five to seven days late.
- Similarly, the commencement of withdrawal has happened in the first week of September only twice during this period, and last year, the withdrawal started as late as October 9 and was completed in around just a week.
- One of the significant changes being noticed is that rainfall is getting increasingly concentrated within a narrow band of days within the monsoon season. So, there are extremely wet days followed by prolonged periods of dry days.
- Areas that have traditionally received plenty of rainfall are often remaining dry, while places that are not expected to get a lot of monsoon rain have sometimes been getting flooded.

Impact of the Changes:

- New dates will likely nudge farmers in some parts of the country to make slight adjustments in the time of sowing their crops.
- If the rainfall over the rice-growing regions occurs very late, then the transplantation of rice would be affected, which in turn could hit the crop yield.



- Water Management Agencies managing the dams in the central plains, should now expect more rain only in the latter part of June.
- Instead of planning only until the start of June, they would now be prompted to preserve and hold on to some water until later in the month.
- The change in normal dates of the onset and withdrawal of the monsoon would help people understand when to expect rains, and to plan their activities accordingly.

14.IVF Helping White Rhino Population to Increase

Why in News?

- Researchers said that they have created another embryo of the nearly extinct northern white rhino, a remarkable success in an ongoing global mission to keep the species from going extinct.

Highlights:

- The Kenyan conservancy looking after the last male northern white rhino was forced to euthanise it in March 2018.
- The death of Sudan, who was earlier at the Dvur Králové Zoo in the Czech Republic, left the world with only two northern white rhinos.
- The northern white is one of the two subspecies of the white (or square-lipped) rhinoceros, which once roamed several African countries south of the Sahara.
- The other subspecies, the southern white is, by contrast, the most numerous subspecies of rhino, and is found primarily in South Africa.
- Scientists created a test-tube embryo by fertilising the egg of a southern white female with the frozen sperm of a northern white male.
- The embryos have been preserved in liquid nitrogen, and will be transferred to a southern white surrogate.
- Since the gestation period for a rhino could be 18 months, the first northern white calf is expected to arrive in the world in 2022.
- The ultimate goal, scientists say, is to create a herd of perhaps five northern white rhinos that could be returned to the wild.

Indian Rhinoceros:

- The Indian rhinoceros, also called the greater one-horned rhinoceros and great Indian rhinoceros, is a rhinoceros species native to the Indian subcontinent.

- It is listed as Vulnerable on the IUCN Red List.
- They can be found in:
 - ✓ Kaziranga National Park
 - ✓ Jaldapara National Park
 - ✓ Pobitora Wildlife Sanctuary
 - ✓ Orang National Park
 - ✓ Gorumara Dudhwa National Park
 - ✓ Manas National Park
 - ✓ Katarniaghat Wildlife Sanctuary

15. Locusts attack in India

Why in News?

- Locust attacks emerging from the desert area in Pakistan have struck parts of Rajasthan and Gujarat, causing heavy damage to standing crop.

Highlights:

- Locusts are a group of short-horned grasshoppers that multiply in numbers as they migrate long distances in destructive swarms.
- Only four species of locusts are found in India: Desert locust (*Schistocerca gregaria*), Migratory locust (*Locusta migratoria*), Bombay Locust (*Nomadacris succincta*) and Tree locust (*Anacridium* sp.).
- The desert locust is regarded as the most important in India as well as internationally. The swarms feed on leaves, flowers, fruits, seeds, bark and growing points, and also destroy plants by their sheer weight as they descend on them in large numbers.
- India has a locust control and research scheme that is being implemented through the Locust Warning Organisation (LWO), established in 1939 and amalgamated in 1946 with the Directorate of Plant Protection Quarantine and Storage (PPQS) of the Ministry of Agriculture.
- The LWO's responsibility is monitoring and control of the locust situation in Scheduled Desert Areas, mainly in Rajasthan and Gujarat, and partly in Punjab and Haryana.
- Although no locust plague cycles have been observed after 1962, during 1978 and 1993, largescale attacks were reported.
- India is most at risk of a swarm invasion just before the onset of the monsoon. The swarms usually originate in the Arabian Peninsula and the Horn of Africa.

16. Iconic platypus

Why in News?

- Australia's devastating drought and other effects of climate change are pushing the iconic duck-billed platypus, a globally unique mammal, towards extinction.

Highlights:

- Platypuses were once considered widespread across the eastern Australian mainland and Tasmania, although not a lot is known about their distribution or abundance.
- Researchers examined the risks of extinction for this intriguing animal and have called for action to minimise the risk of the platypus vanishing due to habitat destruction, dams and weirs.
- The study examined the potentially devastating combination of threats to platypus populations, including water resource development, land clearing, climate change and increasingly severe periods of drought.
- Documented declines and local extinctions of the platypus show a species facing considerable risks, while the International Union for Conservation of Nature (IUCN) recently downgraded the platypus' conservation status to "Near Threatened".
- The threats include dams that stop their movements, agriculture which can destroy their burrows, fishing gear and yabby traps which can drown them and invasive foxes which can kill them.

The Platypus:

- The platypus is the sole living representative of its family, and genus, though a number of related species appear in the fossil record.
- Like other monotremes it senses prey through electrolocation. It is one of the few species of venomous mammals, as the male platypus has a spur on the hind foot that delivers a venom capable of causing severe pain to humans.
- It is one of the five extant species of monotremes, the only mammals that lay eggs instead of giving birth to live young.
- Platypus sanctuaries: David Fleay Wildlife Park, Gold Coast, Queensland. Lone Pine Koala Sanctuary, Fig Tree Pocket, Brisbane, Queensland. Walkabout Creek Wildlife Centre, The Gap, Brisbane, Queensland. The Australian Platypus Park at Tarzali Lakes, Millaa Millaa, Queensland. Taronga Zoo, Sydney, New South Wales Sydney Wild Life, Sydney, New South Wales Australian Reptile Park, Somersby, New South Wales Healesville Sanctuary, near Melbourne, Victoria.

17. Biodegradable Plastics

Why in News?

- As people are searching for alternatives to plastics, many are trying out a new version known as biodegradable plastic. The question arises, whether it is as safe as presumed.

Highlights:

- Plastic, in the form of bottles, bags, packaging materials, furniture and more, has become an integral part of our present-day lives. However, there are rising problems due to over-use of plastic which has caused a worldwide alarm.
- Theoretically speaking, biodegradable means the material should break down into water, carbon dioxide and minerals. However, this is not the case with all plastics.
- Also, many of the plastics that are bio-degradable, only degrade at very specific temperatures and also need optimal levels of light, water and oxygen for the same.
- And even then, they leave behind residues which are toxic for the environment. Many of the plastics will not biodegrade naturally.
- Owing to the conditions required for their biodegradation, a lot of plastics will only get biodegraded at industrial facilities. Many Bio-based plastics are known to not be biodegradable. However, they can be recycled, albeit partially. They have known to have similar structure to that of fossil fuel-based plastics. Every bio-based plastic does not deliver the same amount of pure recycle streams. These streams are the amount of product that can be recycled to produce something new. Bio-based plastic and even biodegradable plastic while having their virtues, also come with their own set of flaws. As such, they cannot really be substitutes to plastic due to a lot of reasons.

18. India phases out ozone depleting HCFC-141b

Why in News?

- Issue India has successfully completed the phasing out of Hydro chloro fluoro carbon (HCFC)-141b, used by foam manufacturing companies and one of the most potent ozone-depleting chemicals.

Highlights:

- Ozone occurs naturally in small amounts in the upper atmosphere of the earth. It protects life on earth from the sun's ultraviolet (UV) radiation. But its presence on ground creates many health problems.

- HCFC-141b is not produced in India and all the domestic requirements are met through imports. With the notification prohibiting the import of HCFC-141b, India has completely phased out the important ozone depleting chemical.
- Simultaneously, the use of HCFC-141b by foam manufacturing industry has also been closed as on January 1 under the Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2014.
- The phase out of HCFC-141b from the country has twin environmental benefits, one is assisting the healing of the stratospheric ozone layer and the second is climate change mitigation due to transition of foam manufacturing enterprises at large scale to low global warming potential alternative technologies.
- Most of the companies that are manufacturing foam in India are micro, small and medium enterprises (MSMEs) and belong to informal sector.

HCFC-141b:

- Hydrochlorofluorocarbon-141b, or 1,1-dichloro-1-fluoroethane (HCFC141b), has been developed as a replacement for fully halogenated chlorofluorocarbons because its residence time in the atmosphere is shorter, and its ozone depleting potential is lower than that of presently used chlorofluorocarbons.
- HCFC-141b is used in the production of rigid polyurethane and polyisocyanurate or phenolic insulation foams for residential and commercial buildings. It may also be used as a solvent in electronic and other precision cleaning applications.
- HCFCs are ozone-depleting substances and are to be phased out under the Montreal Protocol by 2020 in the developed world and 2040 elsewhere.

19. Tibetan Glaciers Reveal Ancient Virus

Why in News?

- A glacier on the north western Tibetan Plateau of China has hosted an ensemble of frozen viruses, many of them unknown to modern science. Scientists excavated the site, revealing the existence of 28 never-before-seen virus groups.

Highlights:

- Investigating these mysterious viruses could help scientists in understanding which viruses thrived in different climates and environments over time.
- Studying ancient glacial microbes can be challenging. That's because it's extremely easy to contaminate ice core samples with modern-day bacteria.

- The team drilled 50 meters (164 feet) down into the glacier to obtain two ice cores, which then underwent a three-step decontamination protocol.
- After that, the researchers used microbiology techniques to identify microbes in the samples. The microbes differed significantly across the two ice cores, presumably representing the very different climate conditions at the time of deposition.
- Climate change now threatens both our ability to exhaustively catalogue those tiny lifeforms as well as our ability to stay safe from dangerous ones.
- In a worst-case scenario, this ice melt [from climate change] could release pathogens into the environment. If this happens, it's best to know as much about these viruses as possible.
- Research into ancient viruses provides a first window into viral genomes and their ecology from Glacier Ice.

20. Carbon Disclosure Project Report 2019

Why in News?

- The Carbon Disclosure Project (CDP) 2019 report was recently published.

Carbon Disclosure Project:

- CDP is published by the Global Reporting Initiative.
- It is aimed at measuring the carbon reduction activities undertaken by different companies and firms operating in various countries across the globe.
- The report surveys corporate commitments to science-based targets (SBT) and evaluates the climate change risk that they are exposed to.

India's Performance:

- India secured the 5th spot on the project report.
- India is the first developing economy with a maximum number of companies committing to the science-based targets.
- The CDP Report 2019 said that a total of 58 companies shared details about the environment-related activities undertaken by them in this year.
- The report also claims that over 98 percent of top Indian companies have formed some type or committee or group within its organization to drive and address climate-related issues.
- The report also showcased the changing mind-set of India Inc with nearly all major companies setting up some form of oversight to evaluate climate risk.

Global Scenario:

- The US topped the annual CDP report with 135 companies disclosing their climate-related activities, followed by Japan in the second position with 83 companies and the UK in the third position with 78 countries.
- While France was placed fourth with 51 companies disclosing their details, India was placed fifth with 38 companies committing to the science-based targets.
- In 2018, India had only 25 companies committing to the SBTs.
- India is followed by Germany and Sweden with 30 and 27 companies respectively, while Switzerland and Spain had 23 and 22 companies respectively.
- Netherlands was listed 10th on the list with 18 companies committing to SBT initiatives.

21. Indian Ocean Dipole

Why in News?

- Australia is facing raging bushfires across its vast grasslands, which its terms to be an effect of severe drought caused due to alterations in Indian Ocean Dipole (IOD). In this context it is necessary to understand the phenomenon of IOD.

Highlights:

- The Indian Ocean Dipole (IOD), also known as the Indian Niño, is an irregular oscillation of sea surface temperatures in which the western Indian Ocean becomes alternately warmer (positive phase) and then colder (negative phase) than the eastern part of the ocean.
- The IOD involves an aperiodic oscillation of sea-surface temperatures (SST), between "positive", "neutral" and "negative" phases.
- A positive phase sees greater-than-average sea-surface temperatures and greater precipitation in the western Indian Ocean region, with a corresponding cooling of waters in the eastern Indian Ocean, which tends to cause droughts in adjacent land areas of Indonesia and Australia.
- The negative phase of the IOD brings about the opposite conditions, with warmer water and greater precipitation in the eastern Indian Ocean, and cooler and drier conditions in the west.
- The IOD also affects the strength of monsoons over the Indian subcontinent.
- The research shows that when the IOD is in its negative phase, with cool western Indian Ocean water and warm water off northwest Australia (Timor Sea), winds are generated

that pick-up moisture from the ocean and then sweep down towards southern Australia to deliver higher rainfall.

- In the IOD-positive phase, the pattern of ocean temperatures is reversed, weakening the winds and reducing the amount of moisture picked up and transported across Australia.
- The consequence is that rainfall in the south-east is well below average during periods of a positive IOD.

22. Corals restoration in Gulf of Kachchh

Why in News?

- The Zoological Survey of India (ZSI), with help from Gujarat's forest department, is attempting for the first time a process to restore coral reefs using biorock or mineral accretion technology in the Gulf of Kachchh.

Highlights:

- Biorock is the name given to the substance formed by electro accumulation of minerals dissolved in seawater on steel structures that are lowered onto the sea bed and are connected to a power source, in this case solar panels that float on the surface.
- When a positively charged anode and negatively charged cathode are placed on the sea floor, with an electric current flowing between them, calcium ions combine with carbonate ions and adhere to the structure (cathode). This results in calcium carbonate formation. Coral larvae adhere to the CaCO_3 and grow quickly.
- The fragments of broken corals are tied to the biorock structure, where they are able to grow at least four to six times faster than their actual growth as they need not spend their energy in building their own calcium carbonate skeletons.
- The location for installing the biorock had been chosen keeping in mind the high tidal amplitude in the Gulf of Kachchh.
- The low tide depth where the biorock has been installed is four metres, and at high tide it is about eight metres.
- India has four coral reef areas, Andaman and Nicobar Islands, Lakshadweep, Gulf of Mannar and the Gulf of Kachchh.
- The ongoing initiative of coral restoration using biorock technology could potentially help to sustain the earlier successes. The technology helps corals, including the highly sensitive branching corals, to counter the threats posed by global warming.

Degradation of corals:

- **Water Pollution:**
 - ❖ Water pollution is perhaps the most obvious cause of coral reef destruction. Reefs are harmed when oil, fertilizer, and human or animal waste are dumped in the area. These elements can end up changing the chemical makeup of the water, but the waste can also block life-giving sunlight to the reef.
- **Coral Bleaching:**
 - ❖ Reef bleaching occurs when extreme water conditions cause corals to expel the internal microorganisms that give them their vibrant colours. Bleaching events are attributed to a number of factors, including pollution and extreme low tide, but the most common (and widespread) is the change in water temperature due to global warming.
- **Sedimentation:**
 - ❖ When sediment enters the ocean, it can smother coral reefs, depriving them of sunlight and nutrients. Also, fish are unable to feed and coral polyps are unable to grow, leaving the area inhospitable to reef life.

23. Biorock technique for Coral Restoration

Why in News?

- The Zoological Survey of India (ZSI), with help from Gujarat's forest department, is attempting for the first time a process to restore coral reefs using biorock or mineral accretion technology.

Biorock Technique:

- Biorock is the name given to the substance formed by electro accumulation of minerals dissolved in seawater on steel structures that are lowered onto the sea bed and are connected to a power source, in this case solar panels that float on the surface.
- The technology works by passing a small amount of electrical current through electrodes in the water.
- When a positively charged anode and negatively charged cathode are placed on the sea floor, with an electric current flowing between them, calcium ions combine with carbonate ions and adhere to the structure (cathode).
- This results in calcium carbonate formation. Coral larvae adhere to the CaCO_3 and grow quickly.

- Fragments of broken corals are also tied to the biorock structure, where they are able to grow at least four to six times faster than their actual growth as they need not spend their energy in building their own calcium carbonate skeletons.

Significance of the Move:

- The technology helps corals, including the highly sensitive branching corals, to counter the threats posed by global warming.
- In 2015, the same group of ZSI scientists had successfully restored branching coral species (staghorn corals) belonging to the family Acroporidae (*Acropora formosa*, *Acropora humilis*, *Montipora digitata*) that had gone extinct about 10,000 years ago to the Gulf of Kachchh.

Coral Bleaching:

- The stunning colours in corals come from a marine algae called zooxanthellae, which live inside their tissues. This algae provides the corals with an easy food supply thanks to photosynthesis, which gives the corals energy, allowing them to grow and reproduce.
- When corals get stressed, from things such as heat or pollution, they react by expelling this algae, leaving a ghostly, transparent skeleton behind.
- This is known as 'coral bleaching'. Some corals can feed themselves, but without the zooxanthellae most corals starve.

24. High pesticide levels found in potato and carrot in Nilgiris

Why in News?

- A study of fruits and vegetables grown in the Nilgiris has found that some of the produce might be harbouring high levels of pesticide, beyond what is considered advisable. This was considerable in potato and Carrot.

Highlights:

- The Food Safety and Standards Authority of India (FSSAI) prescribes a maximum residual level (MRL) for some of the organophosphate pesticides used but it does not prescribe it for some other pesticides used in the cultivation of fruit and vegetables.
- The team developed a sensitive method to estimate the levels of organophosphates in the fruits and vegetables using liquid chromatography in tandem with mass spectrometry.
- It is known that organophosphate pesticides such as acephate, malathion, profenofos, chlorpyrifos and quinalphos are used in the cultivation of fruits and vegetables.

- Researchers collected samples of 18 varieties of fruit and vegetable from four cities of the Nilgiris namely Ooty, Gudalur, Kothagiri and Coonoor.
- The researchers did not detect pesticides in approximately 57% of the samples. Close to 34% had pesticides used below the MRLs and the remainder showed usage of pesticides above the MRLs.
- Of the 659 randomly picked fruit and vegetable samples studied, 53 had higher levels of pesticide. These were mainly in strawberry, potato, cabbage, cauliflower, carrot, garlic and broccoli.
- About 85% of these samples contained chlorpyrifos, which was the most common, followed by quinalphos, acephate, profenofos and malathion.
- Among the varieties of vegetables and fruits studied, potato and carrot had the highest usage of these pesticides.
- Researchers say that residual monitoring in fruits and vegetables is important to ensure minimal pesticide residue level to safeguard consumer health.

25. Ramsar Sites in India

Why in News?

- 10 more wetlands from India get the Ramsar site tag.



Highlights:

- The Ramsar Convention, signed in 1971, is one of the oldest inter-governmental accords signed by member countries to preserve the ecological character of their wetlands of international importance.
- In a major recognition towards the Government of India's effort towards conservation, restoration and rejuvenation of its wetlands, Ramsar has declared 10 more wetland sites from India as sites of international importance.
- Punjab already had 3 sites whereas UP had 1, to which these new sites are added.
- India now has 37 Ramsar sites and the surface area covered by these sites is now 1,067,939 hectares.
- The Ramsar sites are maintained in Montreux Record to track any major ecological changes that might affect any of the wetland sites positively or in a reverse way.
- Wetlands provide a wide range of important resources and ecosystem services such as food, water, fibre, groundwater recharge, water purification, flood moderation, erosion control and climate regulation. They are, in fact, are a major source of water and our main supply of fresh water comes from an array of wetlands that help soak rainfall and recharge groundwater.
- **The newly-declared Ramsar wetland sites are:**
 1. Nandur Madhameshwar (first Ramsar site in Maharashtra)
 2. Keshopur-Miani (Punjab)
 3. Beas Conservation Reserve (Punjab)
 4. Nangal (Punjab)
 5. Nawabganj (UP)
 6. Parvati Agra (UP)
 7. Saman (UP)
 8. Samaspur (UP)
 9. Sandi (UP)
 10. Sarsai Nawar (UP)

26. African Cheetahs to be introduced in India

Why in News?

- The Supreme Court has allowed the Centre to reintroduce the African cheetah to a suitable habitat in India.
- Reintroduction of a species means releasing it in an area where it is capable of surviving

Highlights:

- With India's own cheetahs vanishing, a plea for this had been filed by the National Tiger Conservation Authority (NTCA), seeking permission to introduce the African cheetah from Namibia.
- In May 2012, the apex court had stalled the plan to initiate the foreign cheetahs into the Palpur Kuno sanctuary in Madhya Pradesh fearing they may come into conflict with a parallel and a much-delayed project to reintroduce lions into the same sanctuary.
- The court was also worried whether the African cheetahs would find the sanctuary a favourable climate as far as abundance of prey is concerned.
- For now, the animals will be brought in on an experimental basis to see if they can adapt to Indian conditions.
- Before Namibia, India had approached Iran for Asiatic cheetahs, but had been refused.
- The Asiatic cheetah is classified as a "critically endangered" species by the IUCN Red List, and is believed to survive only in Iran.
- Reintroductions of large carnivores have increasingly been recognised as a strategy to conserve threatened species and restore ecosystem functions.

Palpur Kuno National Park:

- Kuno National Park is a protected area in Madhya Pradesh in the Sheopur and Morena districts. It is part of the Kathiawar-Gir dry deciduous forests ecoregion.
- It was selected as a possible site to implement the Asiatic Lion Reintroduction Project, which aimed at establishing a second lion population in India.
- Kuno Wildlife Sanctuary was also proposed as a possible site for Cheetah reintroduction in India.
- Most of the original inhabitants of the designated park area were the Saharia tribal people.
- The vegetation of the protected area includes *Anogeissus pendula* forest and scrub, *Boswellia* and *Butea* forest, dry savanna forest and grassland and tropical riverine forest.

6. INTERNATIONAL RELATIONS

1. MoU on cooperation in Polar Science

Why in News?

- Cabinet approves Memorandum of Understanding between India and Sweden on cooperation in Polar Science.

Highlights:

- The agreement was signed between the Ministry of Earth Sciences (MoES), India and Ministry of Education and Research, Sweden in December 2019.
- The collaboration between India and Sweden in polar science will enable sharing of the expertise available with both Countries.
- India and Sweden are both signatories to the Antarctic Treaty and to the Protocol to the Antarctic Treaty on Environmental Protection.
- Sweden as one of the eight “Arctic States” is one of the Member States in the Arctic Council whereas India has the Observer Status in the Arctic Council.
- Arctic Council: The Arctic Council is the leading intergovernmental forum promoting cooperation, coordination and interaction among the Arctic States, Arctic indigenous communities and other Arctic inhabitants on common Arctic issues, in particular on issues of sustainable development and environmental protection in the Arctic.
- 8 Arctic States: Canada, the Kingdom of Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, Russia, Sweden and the United States.
- Sweden has a vigorous scientific program in the Polar Regions, both in Arctic and Antarctic. India likewise, has sustained scientific research programs in both the Polar Regions as well as in the oceanic realm.

2. Jus Cogens

Why in News?

- The US has threatened to target few historical sites if Iran retaliates to attack US in revenge. This is a breach of JUS COGENS as targeting cultural sites amounts to a war crime.

Jus Cogens:

- JUS COGENS or ius cogens, meaning “compelling law” in Latin, are rules in international law that are peremptory or authoritative, and from which states cannot deviate.

- The jus cogens rules have been sanctioned by the Vienna Conventions on the Law of Treaties of 1969 and 1986. According to both Conventions, a treaty is void if it breaches jus cogens rules.
- Article 64 of the 1986 Convention, “Emergence of a new peremptory norm of general international law (jus cogens)”, says: “If a new peremptory norm of general international law emerges, any existing treaty which is in conflict with that norm becomes void and terminates.”
- So far, an exhaustive list of jus cogens rules does not exist. However, the prohibition of slavery, genocide, racial discrimination, torture, and the right to self-determination are recognised norms.
- The prohibition against apartheid is also recognised as a jus cogens rule, from which no derogation is allowed, since apartheid is against the basic principles of the United Nations.

Vienna Convention on Law of Treaties:

- Article 53 of the 1969 Convention says: “A treaty is void if, at the time of its conclusion, it conflicts with a peremptory norm of general international law.
- For the purposes of the present Convention, a peremptory norm of general international law is a norm accepted and recognized by the international community of States as a whole as a norm. From this no derogation is permitted and which can be modified only by a subsequent norm of general international law having the same character.
- Article 64 says- If a new peremptory norm of general international law emerges, any existing treaty which is in conflict with that norm becomes void and terminates.
- Besides treaties, unilateral declarations also have to abide by these norms.

3. MILAN 2020

Why in News?

- The City of Destiny, Visakhapatnam, is gearing up to host an international naval event titled ‘MILAN’ in March 2020.

MILAN 2020:

- MILAN 2020 is a multilateral naval exercise aimed to enhance professional interaction between friendly foreign navies and learn from each other’s strengths and best practices in the maritime domain. The Exercise with the theme ‘Synergy Across the Seas’ would provide an excellent opportunity for Operational Commanders of friendly foreign navies to interact with each other in areas of mutual interest.

- Of the 41 navies invited, confirmations from over 30 navies have been received towards their participation in MILAN 2020.
- MILAN stands for Multilateral Naval Exercise.
- The event consists of a sea phase and a Harbour Phase.

4. Mutual Legal Assistance

Why in News?

- In furtherance to India's policy of zero tolerance for crime and in an endeavor to fast track the dispensation of justice, the Ministry of Home Affairs (MHA) has issued Revised Guidelines for Mutual Legal Assistance in Criminal Matters.

Mutual Legal Assistance Guidelines:

- They aim to enhance and streamline the process of international mutual legal assistance in criminal matters.
- By incorporating various legal and technological developments in the recent years, it aims to make the documentation in this regard more precise and focused as well as compliant with International requirements.
- The guidelines have also taken into account the concerns raised by various courts for prompt and timely responses in service of documents on persons residing abroad.
- As an initiative, the revised guidelines have provision for service of documents on authorities of foreign country preferably within 10 days of receipt of request in respect of offences committed against women and children.

Why need Mutual Legal Assistance?

- The transnational nature of crime and digital explosion has blurred geographical boundaries for criminal activities.
- Availability of evidence and criminals outside the sovereign jurisdiction of countries has necessitated the transformation of scope and nature of conventional investigation.

MLA Treaties:

- India has entered into Mutual Legal Assistance Treaties/ Agreements with 42 countries and is signatory to various international conventions i.e. UNCAC, UNTOC etc.
- The Ministry of Home Affairs (MHA) is the designated 'Central Authority' for India. Generally, assistance is sought and received in the form of Mutual Legal Assistance Requests/Letters.

5. Raisina Dialogue 2020

Why in News?

- India's annual global conference on geopolitics and geo-economics, Raisina Dialogue 2020 has begun with the participation of over 100 countries.

Raisina Dialogue:

- The Raisina Dialogue is a multilateral conference committed to addressing the most challenging issues facing the global community.
- It is jointly organised by the Ministry of External Affairs and the Observer Research Foundation.
- Every year, global leaders in policy, business, media and civil society are hosted in New Delhi to discuss cooperation on a wide range of pertinent international policy matters.
- The Dialogue is structured as a multi-stakeholder, cross-sectoral discussion, involving heads of state, cabinet ministers and local government officials, as well as major private sector executives, members of the media and academics.

Fifth Edition:

- The Fifth Edition of the Dialogue 2020 has been India's contribution to global efforts to discover solutions, identify opportunities and provide stability to a century that has witnessed an eventful two decades.
- This year's Dialogue titled 'Navigating the Alpha Century' is structured as a multi-stakeholder, cross-sectoral discussion, involving heads of states, cabinet ministers and local government officials as well as major private sector executives, members of the media and academics.

Significance:

- The Raisina Dialogue has acquired an enviable global profile uniting the best strategic thinkers of the world.
- The synergies and collaborations in the Raisina Dialogue represent India's deliberative ethos, as well as its international credibility and convening power.
- The Dialogue has grown along with India's diplomatic profile and will set the tone for its intensive diplomatic engagement this year.

6. India to invite Pakistan for SCO summit in Delhi

Why in News?

- India said that it will invite the heads of government of all member countries of the Shanghai Cooperation Organisation (SCO), including Pakistan, when it hosts the summit later this year.

Highlights:

- India and Pakistan became members of the SCO in 2017, and India usually sends its Foreign or Defence ministers to attend the SCO heads of government meetings.
- This would mean that Pakistan's representative, either Prime Minister Imran Khan or a Minister will be coming to India to attend the SCO heads of government meeting.
- If Khan comes for the meeting, this will be the first opportunity for the Indian government to host him after he became Prime Minister in 2018.
- The government's announcement comes hours after Pakistan's efforts to raise J&K at the United Nations Security Council through China failed.

Shanghai Cooperation Organisation

- The Shanghai Cooperation Organisation (SCO), or Shanghai Pact, is a Eurasian political, economic, and security alliance, which was created on 15 June 2001 in Shanghai, China by China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, and Uzbekistan.
- The organisation has expanded its membership to eight countries when India and Pakistan joined SCO as full members on 9 June 2017 at a summit in Astana, Kazakhstan.
- The Heads of State Council (HSC) is the supreme decision-making body in the SCO, it meets once a year and adopts decisions and guidelines on all important matters of the organisation. Military exercises are also regularly conducted among members to promote cooperation and coordination against terrorism and other external threats, and to maintain regional peace and stability.

7. UNCITRAL

Why in News?

- An International Arbitration Tribunal has dismissed all claims brought against India in entirety. The arbitration arose out of the cancellation of Letters of Intent for the issuance of telecom licences to provide 2G services in five telecommunications circles by reason of India's essential security interests.

UNCITRAL:

- The UN Commission on International Trade Law (UNCITRAL) is a subsidiary body of the U.N. General Assembly responsible for helping to facilitate international trade and investment.
- Established by the UNGA in 1966, UNCITRAL's official mandate is "to promote the progressive harmonization and unification of international trade law" through conventions, model laws, and other instruments that address key areas of commerce, from dispute resolution to the procurement and sale of goods.
- UNCITRAL carries out its work at annual sessions held alternately in New York City and Vienna, where it is headquartered.
- The Tribunal constituted in accordance with the UNCITRAL Arbitration Rules 1976 is seated at the Hague, Netherlands, and proceedings are administered by the Permanent Court of Arbitration.

8. India and Brazil to sign Strategic Action Plan

Why in News?

- India and Brazil will upgrade their strategic partnership with an action plan and sign a Bilateral Investment Treaty (BIT) when Brazilian President Jair Bolsonaro visits as the Chief Guest of the Republic Day celebrations.

Highlights:

- The two countries hope to take their partnership to the next level and build on the relationship between Prime Minister Narendra Modi and President Bolsonaro.
- The Strategic Partnership Action Plan will serve as an "umbrella agreement", for plans between the two countries to increase defence cooperation, technology sharing and a logistics agreement.
- Brazil and India will also exchange a Social Security Agreement (SSA), first signed in March 2017, to allow investments in each other's pension funds, to help business processes and encourage the flow of investment.
- Among about 20 agreements set to be exchanged, are the Strategic Partnership Action Plan, along with the BIT, a Mutual Legal Assistance Agreement (MLAT) on crime, agreements on double taxation avoidance, bio-energy or ethanol production, cybersecurity, health, mining, oil and gas exploration and investment, and animal husbandry.

Bilateral Investment Treaty:

- A bilateral investment treaty (BIT) is an agreement establishing the terms and conditions for private investment by nationals and companies of one state in another state. This type of investment is called foreign direct investment (FDI).
- BITs are established through trade pacts. Most BITs grant investments made by an investor of one Contracting State in the territory of the other a number of guarantees, which typically include fair and equitable treatment, protection from expropriation, free transfer of means and full protection and security.
- The distinctive feature of many BITs is that they allow for an alternative dispute resolution mechanism, whereby an investor whose rights under the BIT have been violated could have recourse to international arbitration.

9. ICJ ruling on Rohingya Issue

Why in News?

- The International Court of Justice (ICJ) in The Hague has asked the government of Myanmar to immediately take all measures within its power to prevent atrocities against members of the minority Rohingya Muslim community.

Highlights:

- The Gambia, which is predominantly Muslim, went to the ICJ in November 2019, accusing Myanmar of genocide, which is the most serious of all international crimes. The Gambia was backed by the 57-member Organisation for Islamic Cooperation (OIC).
- The ruling of the court is binding on Myanmar, and cannot be appealed. However, no means are available to the court to enforce it.
- The Gambia and Myanmar are parties to the Genocide Convention that allows a party to move the ICJ for violations. Proving genocide has been difficult because of the high bar set by its 'intent requirement', that is showing the genocidal acts were carried out with the specific intent to eliminate a people on the basis of their ethnicity.
- So far, only three cases of genocide worldwide have been recognised since World War II: Cambodia (the late 1970s), Rwanda (1994), and Srebrenica, Bosnia (1995).
- Even with the stepping in of the Security Council, there are several hurdles in enforcement of ICJ decisions. Any one of the five permanent members of the Security Council with veto powers can block the enforcement of an ICJ decision against itself or its ally.

ICJ Statement:

- Myanmar shall ensure that its military or any irregular armed units within its control, do not commit any of the acts described above, or conspire to commit, direct, attempt to commit, or be complicit in genocide.
- Myanmar shall take “effective measures to prevent the destruction and ensure the preservation of evidence related to allegations of acts” of genocide.
- Myanmar shall submit a report to the ICJ on all measures taken to give effect to the order within four months, and thereafter every six months, until a final decision is passed.

Rohingya Case:

- An estimated 7.3 lakh Rohingya have fled to Bangladesh since 2017 when the Myanmar military launched a brutal crackdown on Rohingya villages in the country’s coastal Rakhine state. In August 2019, the UN said the army’s action was carried out with “genocidal intent”.

10. Sagarmatha Sambaad

Why in News?

- Nepal has invited the PMs of India and Pakistan along with several other heads of government and heads of state for the Sagarmatha Sambaad.

Sagarmatha Sambaad:

- Sagarmatha Sambaad is a multi-stakeholder, permanent global dialogue forum initiated by the Government of Nepal.
- It is scheduled to be held biennially in Nepal.
- The Sambaad (dialogue) is named after the world’s tallest mountain Sagarmatha (Mount Everest).
- The Everest is also a symbol of friendship and is meant to promote the notions of common good and collective well-being of humanity.
- The first episode of the Sambaad is scheduled to be held from 2 to 4 April 2020 by the Ministry of Foreign Affairs (Nepal).
- The theme of the first Sambaad is “Climate Change, Mountains and the Future of Humanity.”

Significance:

- This is the first ever multi-stakeholder dialogue and a biggest diplomatic initiative in Nepal’s Recent History.

- India and Pakistan have been caught up in a cycle of hostility, which had prevented Islamabad from hosting the SAARC Summit in 2016.
- The Kathmandu event aims to draw all the SAARC leaders and provide an opportunity to break the ice.
- India had accused Pakistan of cross border terrorism while boycotting the Islamabad summit leading to its cancellation.

11. WHO declares Global Emergency on Coronavirus Epidemic

Why in News?

- The World Health Organisation (WHO) has declared an international emergency over the deadly coronavirus from China.

Highlights:

- The World Health Organisation defines a global health emergency, also known as a Public Health Emergency of International Concern (PHEIC), as an event where disease has the risk to spread internationally.
- The WHO's Emergency Committee, an advisory body of international experts, said that evidence had shown that restricting movement of people and goods during public health emergencies may be ineffective and may divert resources from other interventions.
- The WHO said there have also been 82 confirmed cases in 18 other countries, including cases of onward transmission in Germany, Japan, the United States and Vietnam.
- The designation, which is reviewed every three months, allows the WHO to issue global recommendations that the international community is expected to follow.
- The WHO has called a public health emergency of international concern only five times since the relevant legislation took effect in 2007 - for swine flu, polio, Zika and twice for Ebola outbreaks in Africa.
- The declaration is often referred to by its initials PHEIC (Public Health Emergency of International Concern), pronounced “fake” but it gives the WHO real capabilities to affect the course of an epidemic.

Implications of Global Emergency:

- The declaration sends the message that a health emergency is serious.
- It encourages nations to cooperate as much as possible by coordinating personnel, funds and other resources, with the WHO at the helm.

- By underlining the dangers, the designation can be used to help persuade citizens of infected countries to follow health and hygiene recommendations.
- A PHEIC gives the WHO's Emergency Committee authority to recommend travel advisories for cities, regions and countries.
- While the recommendations aren't enforceable, there's considerable pressure for countries to abide by the WHO's advisories. Member states are bound by the WHO's 2005 International Health Regulations.

12. Indian National Commission for Cooperation with UNESCO (INCCU)

Why in News?

- Union HRD Minister chairs a meeting of the Indian National Commission for Cooperation with UNESCO in New Delhi.

INCCU:

- The INCCU is a governmental body formed by the Government of India which functions under the Department of Secondary and Higher Education in the Ministry of Human Resource Development.
- The objective of the Commission is to advise the Government in matters relating to the UNESCO.
- India has been a member of the United Nations Educational, Scientific, Cultural Organization (UNESCO), a specialized agency of the United Nations since its inception in 1946.
- The Constitution of the UNESCO mandates each member to form a national commission to function as agencies of liaison between the national government and UNESCO.
- Accordingly, an interim Indian National Commission for Co-operation with UNESCO was set up in 1949 by the Government of India, Ministry of Education.
- A permanent Commission was established in 1951.

Functions of the INCCU:

- To promote understanding of the objects and purposes of UNESCO among the people of the Republic of India;
- To serve as a liaison agency between the Government of India and the institutions concerned with the working for the advancement of education, science and culture;
- To cooperate with the Government departments and with services, organizations and institutions concerned with questions within UNESCO's competence;

- To encourage participation of national, governmental and non-governmental institutions and various individuals in the formulations and execution of UNESCO's programmes so as to secure for UNESCO all the intellectual, scientific, artistic or administrative assistance that it may require;
- To collaborate with the National Commissions of Asia and the Pacific and with UNESCO's Regional Offices and centres in fostering regional, sub-regional and bilateral cooperation in education, the sciences, culture and information, particularly through the joint formulation and execution of programmes;
- To disseminate information on the objectives, programme and activities of UNESCO and endeavour to arouse public interest in them; and
- To advise the Government of India on matters relating to UNESCO.

India and UNESCO:

- India is among the founding members of UNESCO and has been playing a very active role in promoting UNESCO's ideals and objectives.
- UNESCO's Executive Board examines the programme of work for the Organization and corresponding budget estimates submitted to it by the Director-General.
- It consists of 58 Member States, each with a four-year term of office.
- India was one of the six elected Vice-Chairpersons for 2012-2013.
- India was re-elected as a Member of the Executive Board for 2014-17 in the election held in the 37th General Conference in November 2013.
- India has established an office of Permanent Delegation at UNESCO, Paris.
- Since 2013, India's contribution is 0.666 percent of the total budget of UNESCO.

7. INTERNAL SECURITY & DISASTER MANAGEMENT

1. No Objection Certificate (NOC) web portal

Why in News?

- The Defence Minister launched the Ministry of Defence (MoD) No Objection Certificate (NOC) web portal for undertaking aerial survey with the final permission of Directorate General of Civil Aviation (DGCA).

Highlights:

- The portal will be used by various vendors engaged by State Governments/Public Sector Undertakings/Autonomous bodies in seeking a NOC from the MoD.
- The portal is hosted on the National Informatics Centre platform.
- Through this initiative, the Ministry will be able to considerably reduce the time usually taken in issuing NOC. Among other benefits, this initiative will help in speeding up developmental projects undertaken by various agencies.
- Further, this will also ensure expeditious disposal of applications for carrying out aerial survey, besides bringing in more transparency and accuracy.
- The DGCA has been requested to issue suitable notification to all concerned so that the applicants/vendors could submit their applications online on the newly developed web portal. To facilitate the applicants/vendors, an e-book has also been uploaded on the above web portal.

Directorate General of Civil Aviation (DGCA):

- The DGCA is the governmental regulatory body for civil aviation under the Ministry of Civil Aviation.
- Its vision is to promote safe and efficient air transportation through regulation and proactive safety oversight system.
- The body governs the safety aspects of civil aviation in the country.
- It is headed by the Director-General of Civil Aviation.
- Among other things, the DGCA is engaged in the registration of civil aircraft; licensing of pilots, aircraft maintenance engineers, air traffic controllers, etc.; certification of aerodromes; checking the proficiency of flight crew; granting air operator's certificates to Indian carriers; approving institutes engaged in flying training including simulator training, and any other related training; advising the government on matters pertaining to air transport.

2. Operation Sankalp

Why in News?

- Indian Navy has commenced Maritime Security Operations, code named Op SANKALP, in the Gulf region to ensure safe passage of Indian Flag Vessels transiting through the Strait of Hormuz.

Op Sankalp:

- Indian Navy warships and aircraft were deployed to establish presence, provide a sense of reassurance to the Indian merchantmen, monitor the ongoing situation and respond to any emergent crises.
- The operation is being progressed in close coordination with all stakeholders including Ministry of Defence, Ministry of External Affairs, Ministry of Shipping, Ministry of Petroleum and Natural Gas and DG, Shipping.
- The Navy continues to monitor the situation in the Gulf region and is maintaining presence in the region to ensure security of our sea borne trade and the safety of Indian Flag Merchant Vessels transiting through the region.

3. Indian Cyber Crime Coordination Centre (I4C)

Why in News?

- Union Minister for Home Affairs has inaugurated the Indian Cyber Crime Coordination Centre (I4C) and also dedicated National Cyber Crime Reporting Portal to the Nation.

I4C:

- The scheme to setup I4C was approved in October 2018 to deal with all types of cybercrimes in a comprehensive and coordinated manner.
- At the initiative of Union Ministry for Home Affairs (MHA), 15 States and UTs have given their consent to set up Regional Cyber Crime Coordination Centres at respective States/UTs.
- It has seven components:
 - ✓ National Cyber Crime Threat Analytics Unit
 - ✓ National Cyber Crime Reporting Portal
 - ✓ National Cyber Crime Training Centre
 - ✓ National Cyber Crime Research and Innovation Centre
 - ✓ National Cyber Crime Forensic Laboratory Ecosystem

- ✓ Platform for Joint Cyber Crime Investigation Team
- ✓ Cyber Crime Ecosystem Management Unit

National Cyber Crime Reporting Portal:

- National Cyber Crime Reporting Portal (www.cybercrime.gov.in) is a citizen-centric initiative that will enable citizens to report cyber-crimes online through the portal.
- All the cyber-crime related complaints will be accessed by the concerned law enforcement agencies in the States and Union Territories for taking action as per law.
- This portal was launched on pilot basis on 30th August, 2019 and it enables filing of all cyber-crimes with specific focus on crimes against women, children, particularly child pornography, child sex abuse material, online content pertaining to rapes/gang rapes, etc.
- This portal also focuses on specific crimes like financial crime and social media related crimes like stalking, cyber bullying, etc.
- This portal will improve coordination amongst the law enforcement agencies of different States, districts and police stations for dealing with cyber-crimes in a coordinated and effective manner.

4. Indian Navy to Get Upgraded Fuel HFHSD – IN 512

Why in News?

- A new fuel (High Flash High-Speed Diesel) HFHSD – IN 512, with revised technical specifications, has been launched for pan Navy implementation.

Highlights:

- One of the Key Result Area for the Indian Navy has been fuel quality standards revision to keep pace with the induction of new technology equipment and meet contemporary emission standards.
- With the advent of technology and refining techniques in the petroleum industry better quality of fuel abiding to more stringent specifications has become a necessity. Hence, continuous improvement in the technical specification for diesel is the primary focus area.
- Leveraging technology and improved refining techniques available with the country's petroleum industry, the Indian Navy in collaboration with M/s (Indian Oil Corporation) IOCL carried out an extensive and thorough study and a comparative evaluation of existing international regulations.
- As an outcome, a new fuel (High Flash High-Speed Diesel) HFHSD – IN 512, with revised technical specifications, has been launched.

Impact of HFHSD – IN 512:

- The new fuel specification will ensure both, better quality fuel and also result in a reduced carbon footprint.
- India will be able to ensure interoperability amongst foreign navies during fleet exercises and provide fuel of quality better than that mandated to all foreign navies under bilateral/multi-national logistics support pacts including LEMOA (Logistics Exchange Memorandum of Agreement). The successful introduction of the new fuel is a landmark occasion highlighting the enormous potential which exists within the country to produce world-class products. This effort would also benefit other M/s IOCL consumers in the country like Indian Coast Guard and other merchant marines in the coming years.
- The achievement would also mark a new high with quality fuel available to all foreign Navy ships at Indian ports during exercises with the Indian Navy.
- This revolutionary initiative would go a long way in enhancing equipment reliability, performance, reduced carbon footprint, emissions and more importantly, would be a key enabler in the Navy's 'Mission Based Deployment' on a Global Scale.

5. Operation Vanilla

Why in News?

- Indian Navy launches 'Operation Vanilla' to provide humanitarian assistance and disaster relief at Madagascar.

Highlights:

- Indian Navy Ship Airavat, whilst mission-deployed in the Southern Indian Ocean has been diverted to Antsiranana based on request received from Madagascar.
- The ship will undertake Humanitarian Assistance and Disaster Relief mission as part of 'Operation Vanilla' which has been launched to provide assistance to the affected population of Madagascar post devastated by Cyclone Diane.
- 'Diane' is a moderate tropical cyclone.
- It is packing maximum sustained winds of 40 knots/50 mph and central pressure slightly below 1000 mbar. Diane formed just 38 nautical miles northwest of Port Louis, Mauritius.
- During the port call, the ship, in coordination with the Embassy of India and the Government of Madagascar is planned to undertake relief operations to provide succour to the flood-affected populace. The Indian Navy Ship is geared to set up medical camp and provide food, water and other necessary relief material.