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**Second Assembly of ISA**

Recently, the Second Assembly of the International Solar Alliance (ISA) was hosted by the Ministry of New and Renewable Energy in New Delhi.

- **India** (represented by the Minister for New and Renewable Energy and Power) is the President and **France** is the Co-President of the ISA Assembly.
- Till now, 81 countries of the 121 prospective member countries have signed the Framework Agreement of the ISA. Of these, 58 countries have ratified the same.
  - During the first Assembly of the ISA, an Indian resolution to extend the Membership of the organization to all countries that are members of the United Nations was adopted.
  - The Assembly is the supreme decision-making body of the ISA and gives directions on various administrative, financial and programme related issues.
- For building the domestic capacity of the ISA member countries, several programmes have been initiated:
  - **STAR-C** is a Solar Technology Application Resource Centre project.
  - **Infopedia** is an online platform dedicated to the dissemination of information, best practices, and knowledge on Solar Energy.
  - ISA has significantly extended outreach and has partnered with over 40 organizations (including the United Nations (UN), Multilateral Development Banks (MDBs), Development Finance Institutions (DFIs), etc.).

**International Solar Alliance**

- The ISA, is an Indian initiative that was launched by the Prime Minister of India and the President of France in 2015 in Paris, France on the side-lines of the Conference of the Parties (COP-21).
- The alliance is open to 121 solar resource-rich countries lying fully or partially between the tropic of Cancer and tropic of Capricorn as prospective members.
  - The Government of India has also allotted 5 acres of land to the ISA in **National Institute of Solar Energy (NISE) campus, Gurugram** and has released a sum of Rs. 160 crore for creating a corpus fund, building infrastructure and meeting day to day recurring expenditure of the ISA up to the year 2012-22.
- The overarching objective of the ISA is to collectively address key common challenge of scaling up of solar energy in member countries.

**National Institute of Solar Energy**

- National Institute of Solar Energy (NISE), an autonomous institution of the Ministry of New and Renewable (MNRE), is the apex National R&D institution in the field of Solar Energy.
- It is located in Gurugram, Haryana.

**Whistleblowers Protection Act**

The recent accusations raised against the Infosys Chief Executive Officer (CEO) and other senior officials have brought back the focus on whistleblowers’ safety in India.

**Background**

- Whistleblowing is defined as an act of disclosing information by an employee or any concerned...
stakeholder about an illegal or unethical conduct within an organization.

- A whistleblower is a person who informs about a person or organization engaged in such illicit activity.
- In 2004, the Supreme Court of India directed the Central government that, ‘administrative machinery be put in place for acting on complaints from whistleblowers till a law is enacted.’
- The government, in response, notified a resolution in 2004 named, ‘Public Interest Disclosure and Protection of Informers Resolution (PIDPIR).’
- This resolution gave the Central Vigilance Commission (CVC) the power to act on complaints from whistleblowers.
- In 2007, the report of the Second Administrative Reforms Commission also recommended that a specific law needs to be enacted to protect whistleblowers.

- The UN Convention against Corruption to which India is a signatory (although not ratified) since 2005, encourages states to facilitate reporting of corruption by public officials and provide protection for witnesses and experts against retaliation.
- The Convention also provides safeguards against victimization of the person making such complaints.

To conform with such regulations, in 2011 Whistleblowers Protection Bill was proposed which finally became a law in 2014.

- The Companies Act, 2013, as well as the Securities and Exchange Board of India regulations have made it mandatory for companies to take notice of all such complaints.

**Key Highlights of Whistleblower Protection Act, 2014**

- The Act establishes a mechanism to receive complaints related to disclosure of allegations of corruption or wilful misuse of power or discretion, against any public servant, and to inquire or cause an inquiry into such disclosure.
- The Act also provides adequate safeguards against victimization of the person making such complaints.
- The law does not allow anonymous complaints to be made and clearly states that no action will be taken by a competent authority if the complainant does not establish his/her identity.
- The maximum time period for making a complaint is seven years.

- The Act is not applicable to the Special Protection Group (SPG) personnel and officers, constituted under the Special Protection Group Act, 1988.
- Any person aggrieved by any order of the Competent Authority can make an appeal to the concerned High Court within a period of sixty days from the date of the order.
- Any person who negligently or mala-fidely reveals the identity of a complainant will be punishable with imprisonment for a term extending up to 3 years and a fine which may extend up to Rs 50,000.
- The Whistleblowers Act overrides the Official Secrets Act, 1923 and allows the complainant to make public interest disclosure before competent authority even if they are violative of the later act but not harming the sovereignty of the nation.

The Official Secrets Act was enacted in 1923 by the British to keep certain kinds of information confidential, including, but not limited to, information involving the affairs of state, diplomacy, national security, espionage, and other state secrets.

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Postal Ballot Facilities for Absentee Voters

The Election Commission of India has recently made efforts to ensure that the electors who are unable to come to polling booth/absentee voters are facilitated in every way to ensure their wider participation in the electoral process.

- Such absentee voters include Persons with Disabilities (PwD), Senior citizens, Persons employed in essential services (railways, state transport, and aviation, etc.)

**Steps Taken to Ensure Wider Participation**

- The Government amended the Representation of the People’s Act, 1951 (RP Act), and the Conduct of Election Rules, 1961. These amendments are as follows:
  - A concept of ‘absentee voter’ has been introduced and defined for the elections;
    - ‘Absentee voter’ means a person belonging to such class of persons as may be notified, under clause (c) of section 60 of the RP Act, 1951 and who is employed in essential services as mentioned in the said notification, and includes an elector belonging to the class of senior...
citizens (80 years or above) or persons with disabilities;
- These two categories of voters – ‘senior citizen’ and ‘PwD electors’ can vote either as an absentee voter or as a regular voter on the poll day.
- The Commission is also taking a number of steps such as Systematic Voters’ Education and Electoral Participation (SVEEP) initiatives to make the electors aware of this new facility so that such electors can exercise their voting right in the manner they intend to do.
- SVEEP is the flagship program of the Election Commission of India for voter education, spreading voter awareness and promoting voter literacy in India.

Representation of the People Act, 1951
- This Act provides for the actual conduct of elections in India. It deals with the following matters:
  - Details like Qualification and Disqualification of members of both the Houses of Parliament and the State Legislatures,
  - Administrative machinery for conducting elections,
  - Registration of Political parties,
  - Conduct of Elections,
  - Election Disputes,
  - Corrupt practices & Electoral offences, &
  - By-elections.

Jiyo Parsi Scheme
- The Ministry of Minority Affairs initiated the Jiyo Parsi Scheme in 2013 to check the declining Parsi population.
- The main objective of the scheme is to arrest the declining trend of the Parsi population by adopting a scientific protocol and structured interventions, in order to stabilize their population and thereby increasing the population of Parsis in India.
- The scheme comprises of three components:
  - Advocacy Component that includes workshops, advertisement campaigns to create awareness about the dwindling numbers in the community.
  - Health of the Community Component which covers Childcare and Creche support, assistance to elderly, etc.

Parsi Community
- Parsi community follow Zoroastrianism, which is one of the world’s oldest monotheistic religions. Zoroastrianism was founded by the Prophet Zarathustra (or Zarathustra) in ancient Iran around the 6th-7th century.
- Nowruz (also spelled as Navroz), the Iranian New Year is celebrated in India by the Parsi community on March 21.
- Zoroastrians (Parsis) are among the six religious communities notified as minority communities by the Union Government. The other five are: Muslims, Christians, Sikhs, Buddhists, and Jains.
- Decline in Population:
  - While India’s population more than tripled in over 60 years, the number of Parsi has reduced by almost 50% (Census 2011).
  - Maharashtra has the highest Parsi population in the country followed by Gujarat.
- Infertility and late marriages are among the main reasons for the rapid decline in the Parsi population.

Van Dhan Internship Programme
- The Ministry of Tribal Affairs has launched “Van Dhan Internship Programme” organised by the Tribal Cooperative Marketing Development Federation of India (TRIFED).
- The selected interns will enhance the output of Van Dhan programme to make the tribal population self-reliant. They will support TRIFED activities to develop a mechanism for determination of a just price or producer price of Minor Forest Products (MFP).
- Van Dhan Yojana was launched in 2018, in Chhattisgarh. It is an initiative targeting livelihood generation for tribal population by harnessing the wealth of forest i.e. Van Dhan.
Van Dhan Vikas Kendras are set up under the program. These Kendras aim to boost the economic development of tribals involved in the collection of MFP.

**TRIFED**
- TRIFED came into existence in 1987. It is a national-level apex organization functioning under the administrative control of Ministry of Tribal Affairs.
- Its ultimate objective is socio-economic development of tribal people in the country by way of marketing development of the tribal products such as metal craft, textiles etc.
- It has its Head Office in New Delhi.

### 47th Chief Justice of India
Justice Sharad Arvind Bobde, has been appointed as the 47th Chief Justice of India (CJI), by the President of India.
- As per convention, outgoing CJI Ranjan Gogoi recommended the name of Justice Bobde, the most senior judge of the Supreme Court as his successor.
- The Chief Justice of India and the Judges of the Supreme Court are appointed by the President under clause (2) of Article 124 of the Constitution.

### BHIM 2.0
The Ministry of Electronics and Information Technology (MeitY) has launched a new version of Bharat Interface for Money (BHIM) app i.e. BHIM 2.0.
- BHIM app, that was developed by the National Payments Corporation of India (NPCI), was launched in December, 2016.
- It is a Unified Payment Interface (UPI) that allows real time fund transfer.
- The new version of BHIM supports three additional languages – Konkani, Bhojpuri and Haryanvi – over and above the existing 13.
- Under BHIM 2.0, the existing transaction cap of Rs. 20,000 has been increased to Rs. 1,00,000, from verified merchants.
- Other features include a ‘donation’ gateway, linking multiple bank accounts, option of applying in Initial Public Offering (IPO), gifting money, etc.

### Food Safety Mitra Scheme
The Union Minister of Health and Family Welfare launched the Food Safety Mitra (FSM) scheme to mark the occasion of World Food Day (16th October 2019).
- The theme for the day was ‘Healthy Diets for a Zero Hunger World’.
- Food Safety Mitra (FSM) will be an individual professional certified by the Food Safety and Standards Authority of India (FSSAI) who will assist in compliances related to the Food Safety and Standards Act (FSS Act) and other related rules & regulations.
  - The scheme would create new employment opportunities for youth (particularly with food and nutrition background).
  - FSSAI has partnered with the Domestic Workers Sector Skill Council under the Ministry of Skill Development and Entrepreneurship to launch the training course for FSMs.
  - Domestic Workers Sector Skill Council is a not for profit company registered under the Companies Act, 2013.
  - Its purpose is to define key sectors wherein domestic workers can find employment and to identify critical roles and associated skill gaps.
- Aim: To support small and medium-scale food businesses for ensuring compliance with food safety laws and to facilitate them with the licensing and registration process, hygiene ratings and training programme.

### 20th Livestock Census
The Ministry of Fisheries, Animal Husbandry and Dairying released the 20th Livestock Census report.
- The report provides key results reflecting the aggregate counts of various species and compares data with the previous census.

**Key Points**
- The total Livestock population is 535.78 million in the country showing an increase of 4.6% over Livestock Census-2012.
  - West Bengal observed the highest increase of 23%, followed by Telangana (22%).
  - The backyard poultry has increased by around 46%.
This sharp increase is a significant change in the rural landscape which shows a sign of poverty alleviation.

The total number of cattle in the country has shown an increase of 0.8%.

The increase is mainly driven by a sharp increase in cross-bred cattle and higher female indigenous cattle population.

However, a decline of 6% in the total indigenous cattle population has been observed. This has happened despite the government’s efforts to promote conservation of desi breeds through the Rashtriya Gokul Mission (RGM).

The total milch animals have shown an increase of 6%.

Due to higher yields, foreign breeds constitute more than half the population of milch animals.

Nearly 75% of total cattle in the country are female (cows) – a clear sign of dairy farmers’ preferences for milk-producing cattle.

This has happened owing to the government’s assistance in terms of providing sex-sorted artificial insemination with semen of high-yielding bulls, free of cost at farmers’ doorstep.

Challenge: The more the number of animals that produce milk, the more would be pressure on land and fiercer would be competition between man and animals for survival.

The Livestock Census

The Livestock Census has been conducted in the country periodically since 1919-20. The last livestock census was conducted in 2012.

It covers all domesticated animals and their headcounts.

So far 19 such censuses have been conducted by the Ministry of Fisheries, Animal Husbandry and Dairying, in participation with State Governments and UT Administrations.

The census is beneficial not just for policymakers but also for agriculturists, traders, entrepreneurs, dairying industry and masses in general.
Economic Scenario

**Highlight s**
- Ease of Doing Business - 2020
- India Innovation Index 2019
- Industry-University Linkage Index
- World Intellectual Property Indicators - 2019
- Share Swap Ratio
- Minimum Support Price
- MGNREGA Act, 2005

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**Ease of Doing Business- 2020**


- According to the report, New Zealand retained its 1st position whereas Somalia was ranked 190th.
- India was placed at 63rd position this time (2019) out of 190 countries marking an improvement of 14 places from its 77th in 2018.
  - India’s score improved from 67.23 (2019) to 71.0 (2020).
  - India for the third consecutive year was present in the list of 10 economies where the business climate has improved the most.
- India’s ranking improved basically on four parameters:
  - Starting a Business - India made starting a business easier by fully integrating multiple application forms into a general incorporation form,
  - Dealing with Construction Permits - For example, building a warehouse cost around 4% of the warehouse value as compared to 5.7% in the previous year,
  - Resolving Insolvency - Recovery rate under resolving insolvency has improved significantly from 26.5% to 71.6%. Also, the time taken for resolving insolvency has also come down significantly from 4.3 years to 1.6 years.
- India continues to maintain its first position among South Asian countries. It was 6th (in 2014).
- The World Bank will now include Kolkata and Bengaluru, besides Delhi and Mumbai, for preparing *ease of doing business report*, in order to provide a holistic picture of the business environment of the country.

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**Ease of Doing Business Report**

- The report was introduced in 2003 to provide an assessment of objective measures of business regulations and their enforcement across 190 economies on ten parameters affecting a business through its life cycle.
- The report measures the performance of countries across 10 different parameters namely-
  - Starting a Business,
  - Dealing with Construction permits,
  - Electricity availability,
  - Property registration,
  - Credit availability,
  - Protecting minority Investors,
  - Paying Taxes,
  - Trading across borders,
  - Contracts enforcement, and
  - Resolving Insolvency.
- This time two more parameters were considered namely, employing workers and contracting with the government but these are not included in the score and rankings.
- It ranks countries on the basis of Distance to Frontier (DTF) score that highlights the gap of an economy with respect to the global best practice. For example, a score of 75 means an economy was 25 percentage points away from the frontier constructed from the best performances across all economies and across time.

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Note:
India Innovation Index 2019

NITI Aayog with the Institute for Competitiveness (Gurugram, Haryana) has released the India Innovation Index 2019.

- The index, developed on the lines of the Global Innovation Index (GII), would help Indian states and Union Territories (UTs) to design policies to drive innovation across regions.
- The India Innovation Index 2019 is calculated as the average of the scores of two dimensions: Enablers and Performance.
  - The Performance captures benefits that a nation derives from the inputs: Knowledge Output and Knowledge Diffusion.
- The states have been bifurcated into three categories:
  - Major states,
  - North-East and hill states,
  - Union territories/Small states

Key Findings

- The innovation ecosystem of the country is strong in south and western parts of India. In fact, three of the top five major states are from southern India.
- Karnataka emerged topper in the overall rankings in the category of major states with Tamil Nadu and Maharashtra in the second and third positions respectively.
- Karnataka’s top position is partly attributed to its top rank in the Performance dimension. It is among the top performers in Infrastructure, Knowledge Workers, Knowledge Output and Business Environment.
  - Maharashtra performs the best in the dimension of Enablers. This implies that it has the best enabling environment for innovation.
- Among the North-Eastern states and Union territories, Sikkim and Delhi occupy the top spots respectively.
- In terms of attracting investment, Karnataka topped the index among major states, followed by Maharashtra and Haryana.
  - Bihar, Jharkhand, and Punjab were the least attractive states for investment.
  - Among North East and the Hill States, Manipur, Arunachal Pradesh, and Tripura were the top three states; while among the UTs, Lakshadweep, Delhi and Goa were the top three regions.

Suggestions to Improve Rankings

- Increased spending on research and development with greater collaboration between the industry and educational institutions may help to enhance innovation capability.
- A collaborative platform consisting of all the stakeholders of innovation - innovators, researchers, and investors from the industry should be developed. This will help to strengthen the industry-academia linkages and will ease the process of technology transfer by providing a platform for innovators to showcase their inventions.

Global Innovation Index

- GII is published annually by Cornell University, INSEAD and the UN World Intellectual Property Organization (WIPO).
- The theme of GII-2019 (12th edition) is “Creating Healthy Lives - The Future of Medical Innovation” which aims to explore the role of medical innovation as it shapes the future of healthcare.
- India's ranking in 2019 is 52, an improvement of 5 points from 2018 rank (57).

Industry-University Linkage Index

The PHD (Progress – Harmony – Development) Chamber of Commerce and Industry in association with the Ministry of Science and Technology has released the...
Industry-University Index assessing input-output relations between the education sector (universities) and industries.

**Key Findings**

- **Performance on Index**
  - Industry linkages were found moderate in India with an overall **score of 4.7** on a scale of 10.
  - Karnataka, Kerala and Gujarat have **topped** in University-Industry Linkages (UILs).
  - Most of the northeastern states are at the **bottom** of the stack and also larger states such as West Bengal, Madhya Pradesh, and Bihar are **poor performers**.

- **Concerns**
  - India is at a very **nascent stage** of developing strong linkages between universities and industries.
  - Absence of a **clear policy** for strengthening linkages between the university and industry is the major reason.

- **Suggestions**
  - The survey identifies **10 sectors for improving industry-university linkage** which include research and development activity, agro and food processing, textiles, Information Technology (IT) and IT-enabled services, energy, cement, pharmaceuticals, and automotive sectors.
  - The index highlighted that the **Bayh Dole Act of US** of the 1980s has been proven the best model in strengthening university-industry linkages.
  - The index emphasized **revival of the Protection and Utilization of Public-Funded Intellectual Property (PUPFIP) Bill** which was tabled in 2008 but later withdrawn from Parliament.

**Bayh Dole Act**

- The Bayh-Dole Act added a **new official policy** for the granting of patents in the United States.
- The Act created a viable route by which **new insights and valuable research results** from universities and other institutions can make their way efficiently to start-ups and established firms.
- This has been followed by many countries world over.

**Protection and Utilization of Public-Funded Intellectual Property (PUPFIP) Bill, 2008**

- It seeks to provide **incentives for creating and commercializing intellectual property** from public-funded research.

- The Bill requires the scientist who creates an intellectual property to immediately inform the research institution. The institution shall disclose this information to the government within 60 days.
- Failure of the scientist to intimate the institution, and of the institution to inform the government carries penalties, which include fines and recovery of the grant funds.
- The PUPFIP bill has been prepared on the lines of the Bayh Dole Act.

**World Intellectual Property Indicators - 2019**


- This Report analyzes IP activity around the globe. It covers the **following areas of intellectual property**: patents, utility models, trademarks, industrial designs, microorganisms and plant variety protection.

**Key Findings**

- In 2018, patent filings around the world exceeded by around 3.3 million, representing a **5.2% growth** over 2017 figures.
  - Asia, being the global hub for IP applications, accounted for **two-thirds of the total applications** in 2018.
  - China was at the **leading position** of global growth in worldwide IP filings in 2018.
  - In India, there was a large increase in the number of filings with respect to
    - Trademark filing activity (+20.9%),
    - Patent filings (+7.5%), and
    - Industrial design filing activity (+13.6%), marking almost **double-digit growth** in 2018. For India, 2018 was the third successive year of double-digit growth.
  - The share of withdrawn or abandoned applications was highest in India (66.2%).
However, India reduced the number of pending applications by 25% in 2018 compared over the last year (2017).

- **Trade Mark**: A trademark is a word, phrase, symbol, and/or design that identifies and distinguishes the source of the goods of one party from those of others. Unlike patents and copyrights, trademarks do not expire after a set term of years.
- **Patents**: A patent is a limited duration property right relating to an invention, granted by the Trademark Office in exchange for public disclosure of the invention. Patentable materials include machines, manufactured articles, industrial processes, and chemical compositions. The duration of patent protection is 20 years in the case of India.
- **Copyright**: A copyright protects works of authorship that have been tangibly expressed in a physical form. Example - songs, books, movies, and works of art.
- **Industrial Design**: In a legal sense, an industrial design constitutes the ornamental or aesthetic aspect of a product. It may consist of three-dimensional features, such as the shape of an article, or two-dimensional features, such as patterns, lines or colours.

**Share Swap Ratio**

At least seven of the 10 public sector banks slated for merger have invited independent experts to determine their share swap ratios.

- When a company pays for acquisition by issuing its own shares to the shareholders of the target company, this is known as a share swap.
- The number of shares to be issued in lieu of their existing holdings in the target company is called the Share Swap Ratio.
  - It is determined by valuing the target company after looking into metrics such as its revenues and profits, as well as its market price.

**Importance**

- A swap ratio shows the relative size and strength of both companies. In general, if more shares of the target company are exchanged for one share in the acquiring company, then the latter is likely to be bigger and stronger.
- It also determines the control that each set of shareholders has on the combined company.

**Advantages**

- **Confidence to Investors**: A swap ratio's rationale is to give the same amount of confidence to investors even after the merger or acquisition goes through.
- **Maintain Equilibrium**: The swap ratio is kept reasonable to maintain an equilibrium between the investors of both companies.
- **Lower Risks**: As shareholders of the target company will also be shareholders of the merged entity, the risks and benefits of the expected synergy from the merger are shared by both the parties.
- **Non Taxable**: In case of a share swap, when shareholders of the acquired company are given shares of the acquirer company as part of the deal, it is not considered a transfer of shares. Hence, capital gains tax will not arise.
  - The tax liability will arise only when the shares of the merged entity are sold.

**Capital Gains Tax**

- Any profit or gain that arises from the sale of a capital asset is a capital gain. This gain or profit comes under the category of ‘income’.
- Hence, the capital gain tax will be required to be paid for that amount in the year in which the transfer of the capital asset takes place. This is called the capital gains tax, which can be both short-term or long-term.

**Minimum Support Price**

The Cabinet Committee on Economic Affairs (CCEA), headed by the Prime Minister has hiked the Minimum Support Price (MSP) for Rabi crops for the marketing season 2020-21.

- The increase in MSP for Rabi Crops is in line with the principle of fixing the MSPs at a level of at least 1.5 times of the all India weighted average Cost of Production [CoP].

**Minimum Support Price**

- The MSP is the rate at which the government buys grains from farmers.
The reason behind the idea of MSP is to counter the price volatility of agricultural commodities due to factors like the variation in their supply, lack of market integration and information asymmetry.

The MSP is fixed on the recommendations of the Commission for Agricultural Costs and Prices (CACP).

- The CACP is an attached office of the Ministry of Agriculture and Farmers Welfare, formed in 1965.
- It is a statutory body that submits separate reports recommending prices for Kharif and Rabi seasons.

Factors taken into consideration for fixing MSP include demand and supply, cost of production, price trends in the market, both domestic and international, Inter-crop price parity, terms of trade between agriculture and non-agriculture, a minimum of 50% as a margin over the cost of production; and likely implications of MSP on consumers of that product.

The Food Corporation of India (FCI), the nodal central agency of the Government of India, along with other State Agencies undertakes procurement of crops.

**Rabi Crops**

- Rabi crops are sown in winter from October to December and harvested in summer from April to June.
- Some of the important rabi crops are wheat, barley, peas, gram, and mustard.
- Though these crops are grown in large parts of India, states from the north and northwestern parts such as Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Uttar Pradesh are important for the production of wheat and other rabi crops.

**MGNREGA Act, 2005**

The proportion of young workers under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), 2005 is rising.

- The ratio of young workers among total MGNREGA workers has risen to 9.1% in 2018-19 and 10.06% in 2019-20 from 7.73% in 2017-18.
- The total number of individuals working under MGNREGA has also gone up in recent years.
- The rising trend of the young workforce among MGNREGA workers could be a reflection of the following events:

  - **Demonetisation**
    - Approximately, 1.5 million jobs were lost after demonetization. Alongside this loss of jobs, there has been a decline in the Labour Force Participation Rate (LFPR).
    - As a result of job loss, many workers opted for MGNREGA for livelihood.

  - **The rollout of Goods and Service Tax (GST)**
    - The implementation of GST improved economic efficiency but the complexities of the new tax regime have driven many small enterprises out of business forcing unemployment.
    - Uniform tax regime through GST has also pushed many small and medium enterprises in debt.
    - Both these events caused disruptions in the economy resulting in a surge of workers opting jobs under MGNREGA.

**Mahatma Gandhi National Rural Employment Guarantee Act, 2005**

- The Act aims at enhancing the livelihood security of people in rural areas by guaranteeing hundred days of wage employment in a financial year to a rural household whose adult members (at least 18 years of age) volunteer to do unskilled work.
- It is a demand-driven, social security and labour law that aims to enforce the ‘right to work’.
- The central government bears the full cost of unskilled labour. The Ministry of Rural Development (MRD) in association with state governments, monitors the implementation of the scheme.

**Impact of MGNREGA**

- Agriculture and allied activities constitute more than 65% of the works taken up under the programme.
- This has helped to reduce rural poverty to a greater extent. It has also been described as a "stellar example of rural development" by the World Development Report 2014.
- Also, the central government is working on an initiative to include skill and training as a part of MGNREGA to make it not only a job creator but also to increase skilled labourers across the country.

**Challenges**

- Low Wage Rates
Currently, MGNREGA wage rates of 17 states are less than the corresponding state minimum wages.

- The low wage rates have resulted in a lack of interest among workers in working for MGNREGA schemes, making way for contractors and middlemen to take control, locally.

- **Insufficient budget allocation**
  - Almost every year, more than 80% of funds get exhausted within the first six months.
  - Thus, the fund allocation is insufficient to ensure proper implementation on the ground.

- **Regular payment delays**
  - Despite the order of the Supreme Court, no provision has yet been worked out for calculation of full wage delays and payment of compensation for the same.

- **Too much centralisation weakening local governance**
  - A real-time Management Information System (MIS) based implementation and a centralised payment system has left the representatives of the Panchayati Raj Institutions (PRIs) with limited role in implementation, monitoring and grievance redressal of MGNREGA schemes.
  - PRIs hardly have any power to resolve issues or make payments.

**Way Forward**

- To ensure better implementation of MGNREGA, there should be debate and discussions, involving various stakeholders such as MGNREGA workers, contractors, bureaucrats and politicians.
India-Saudi Arabia

Recently, the Prime Minister of India visited Saudi Arabia, which is the second visit to the country in three years.

Key Highlights

- India-Saudi Strategic Partnership Council was formed to coordinate on strategically important issues. The council will be headed by the Prime Minister and Crown Prince Mohammad Bin Salman Al Saud and will meet every two years.
  - India is the fourth country with which Saudi Arabia has formed such a strategic partnership, after the UK, France and China.

- 12 Memorandum of Understandings (MoUs) including an MoU that will help Hajj pilgrims to travel comfortably in Saudi Arabia during the pilgrimage seasons were signed.

- Agreement for the establishment of the independent Palestinian state based on the pre-1967 borders with "Jerusalem as its capital".

- Cooperation in the Energy Sector:
  - Saudi Arabia is keen to play a role in the creation of strategic petroleum reserves at Padur in Karnataka.
  - A study is being conducted for the setting up of the world’s largest greenfield refinery at Raigarh in Maharashtra by Saudi Aramco, Adnoc of the United Arab Emirates and Indian public sector oil companies.

India-Japan

Recently, the President of India visited Japan. The visit was the first presidential visit to Japan after a gap of 29 years.

Key Highlights

- The President attended the enthronement ceremony of the Emperor Naruhito of Japan in the Imperial Palace.
He also visited the Shinto Meiji Shrine and interacted with a delegation from the Gotemba Pagoda.

- The Shrine is dedicated to the deified spirit of Emperor Meiji. The Meiji restoration in 1868 helped Japan to transform itself into a modern country.
- The chalky stupa at Gotemba Pagoda keeps the Buddha’s ashes presented by late Indian Prime Minister Jawaharlal Nehru.

The foundation stone for Sri Sathya Sai Sanathana Samskruti Project (to develop a temple on the lines of Akshardham) at Sai no Sato, Japan was laid by the president.

India-Japan Ties

- India and Japan share robust ties with cooperation in areas of defence, science and technology and trade.
- In 2014, India and Japan upgraded their relationship to ‘Special Strategic and Global Partnership’.
- Mumbai-Ahmedabad High-Speed Railway (MAHSR) is a very important area of cooperation between India and Japan in the Railway Sector.
- An “India-Japan Digital Partnership” (I-JDP) was launched to widen existing areas of cooperation as well as new initiatives within the scope of cooperation in S&T/ICT, focusing more on “Digital ICT Technologies”.
- India and Japan defence forces organize a series of bilateral exercises namely, JIMEX, SHINYUU Maitri, and Dharma Guardian. Both countries also participate in Malabar exercise with USA.

India-Philippines

The President of India addressed the India-Philippines Business Conclave and the 4th Association of Southeast Asian Nations (ASEAN) – India Business Summit in Manila, Philippines on 19th October 2019.

- India is celebrating the 70th anniversary of diplomatic relations with the Philippines in 2019.
- The President of India also unveiled the statue of Mahatma Gandhi at Miriam College in Quezon City.

India-Philippines Business Conclave

- Both countries aim to integrate India’s “Make in India” with the Philippines’ “Build, Build, Build” infrastructure initiative to create immense opportunities for companies and investors on both sides.
- Both the countries also agreed to sign a Tourism Promotion Agreement to bring the people of the two countries further closer.

India-Philippines Relations

- India and Philippines formally established diplomatic relations in 1949, shortly after both countries gained independence (Philippines in 1946 and India in 1947).
- With India’s Act East Policy (2014), the relationship with the Philippines has diversified further into political-security; trade, industry, etc.
- India has a positive trade balance with the Philippines (more export from India compared to import from the Philippines to India).

18th Non-Alignment Summit

Recently, the Vice President of India attended the 18th Non-Alignment Movement (NAM) Summit which was held in Baku, Azerbaijan.
The theme for the 18th NAM Summit is “Upholding the Bandung Principles to ensure concerted and adequate response to the challenges of the contemporary world.”

- The theme relates to the forthcoming 65th anniversary of Bandung Principles (2020) and the 60th anniversary of the establishment of the Non-Alignment Movement (2021).
- Bandung principles promote world peace and cooperation which were formulated at the Asian-African Conference in 1955.

This NAM Summit majorly focussed on contemporary issues such as terrorism, threats to peace and security, UN reform, climate change, sustainable development, economic governance, and south-south cooperation.

**India and Non-Alignment Movement (NAM)**

- India is a founder member of NAM. It participated actively in NAM meetings till the 1970s but India’s inclination towards erstwhile USSR created confusion in smaller members.
  - It led to the weakening of NAM and small nations drifted towards either the US or USSR.
- Further India’s New Economic Policy and inclination towards the US raised questions over India’s seriousness over non-alignment.
  - The disintegration of the USSR led to the unipolar world order dominated by the US.
- Moreover, NAM continued losing relevance for India in a unipolar world, especially after the founding members failed to support India during the crisis.
  - For instance, during the 1962 War with China, Ghana and Indonesia adopted explicitly pro-China positions.
  - During the 1965 and 1971 wars, Indonesia and Egypt took an anti-India stance and supported Pakistan.

Recently, the Prime Minister of India skipped the second NAM summit in a row (17th and 18th NAM Summit).

- It had been the customary practice ever since the inception of NAM that India had always participated in the summit meetings through its prime minister, with the single exception of the 6th NAM Summit when Chaudhury Charan Singh was the caretaker PM and hence missed it.
- Moreover, India has started to actively engage with new and old global powers.
  - India joining the Quadrilateral Security Dialogue, a coalition seen by many as a counter force to China’s rise in the Indo-Pacific and Shanghai Cooperation Organization led by China showing India’s balancing approach in the new world order.

**Quadrilateral Security Dialogue**

- Quadrilateral Security Dialogue is an informal strategic dialogue of like-minded democracies converging across the Indian and Pacific oceans.
- It comprises of the US, Japan, India and Australia.

**Shanghai Cooperation Organisation**

- SCO is a permanent intergovernmental international organisation created in 2001.
- It’s a Eurasian political, economic and military organization aiming to maintain peace, security, and stability in the region.
- The SCO’s official languages are Russian and Chinese.

**Catalonian Unrest**

There has been a constant demand of separation of Catalonia from Spain.

- Catalonia is a semi-autonomous region in Iberian Peninsula in the north-eastern Spain.
- It has a distinct history dating back almost 1,000 years and has its own language, parliament, flag and anthem.

**Background**

- Before the Spanish Civil War (1936-1939), Catalonia enjoyed broad autonomy but that was suppressed under General Francisco Franco.
- When Franco died, the region was granted autonomy again under the 1978 constitution and prospered as part of the new, democratic Spain.
A 2006 statute granted even greater powers, boosting Catalonia’s financial clout and describing it as a “nation”, but Spain’s Constitutional Court reversed much of this in 2010.

**Demand For Independence**

- The Catalan region has long been the industrial heartland of Spain – first for its maritime power and trade in goods such as textiles, but recently for finance, services and hi-tech companies.
  - It has been one of the wealthiest regions of Spain, contributing around 25.6% of exports, 19% of GDP and 20.7% of foreign investment.
- Catalan nationalists have long complained that their region sends too much money to poorer parts of Spain, as taxes are controlled by Madrid and receives much less from Spain.
- They also claim that Spain’s changes to their autonomous status in 2010 undermines Catalan identity.

**Catalonian Referendum of 2017**

- Referendum was held in October 2017 in which 90% of Catalan voted for independence but the voter turnout was only 43%.
- The referendum was declared illegal by Spain’s central government as it was marred by wide scale violence.

**FATF’s Grey List**

The Financial Action Task Force (FATF), after its 5-day plenary (concluded on 19th October 2019 in Paris), decided to keep Pakistan on the Grey List.

- However, it has warned that Pakistan will be put on the Black List if it does not control terror funding by February 2020.
- Immediate blacklisting of Pakistan did not garner the consensus of all FATF members.
  - India led a diplomatic offensive against Pakistan for its blacklisting. France, the US and the European Union countries supported India.
  - China, Turkey and Malaysia resisted India’s efforts.
- By remaining on the “Grey List”, it would be difficult for Pakistan to get financial aid from the International Monetary Fund (IMF), World Bank and European Union, making its financial condition more precarious.
- Pakistan was placed on the grey list by the FATF in June 2018 and was given a plan of action to complete by October 2019, or face the risk of being placed on the black list with Iran and North Korea.

**Financial Action Task Force**

- The Financial Action Task Force (FATF) is an intergovernmental body established in 1989 during the G7 Summit in Paris.
- The objectives of the FATF are to set standards and promote effective implementation of legal, regulatory and operational measures for combating money laundering, terrorist financing and other related threats to the integrity of the international financial system.
- Its Secretariat is located at the Organisation for Economic Cooperation and Development (OECD) headquarters in Paris.
- **Member Countries:** As of 2019, it consists of thirty-seven member jurisdictions. India is one of the members.
- FATF has two lists:
  - **Grey List:** Countries that are considered safe haven for supporting terror funding and money laundering are put in the FATF grey list. This inclusion serves as a warning to the country that it may enter the blacklist.
  - **Black List:** Countries known as Non-Cooperative Countries or Territories (NCCTs) are put in the blacklist. These countries support terror funding and money laundering activities. The FATF revises the blacklist regularly, adding or deleting entries.
Kartarpur Corridor

India and Pakistan have signed an agreement on to operationalize the Kartarpur corridor. The agreement is valid initially for five years.

- Either party can terminate the agreement at any time by giving notice of one month to the other party of its intention to terminate this agreement.
- Also, the pact could be suspended in case of exigency or persistent violation of its provisions.
- The Pakistan side has agreed to make sufficient provision for langar and distribution of prasad in the Gurdwara premises.
- On the Indian side, all the required infrastructure, including the highway and the passenger terminal will be built.

Kartarpur Corridor

- The Kartarpur corridor connects the Darbar Sahib Gurdwara in Narowal district of Pakistan with the Dera Baba Nanak shrine in Gurdaspur district in India’s Punjab province.
- The agreement will facilitate the visa-free movement of Indian pilgrims who would just need a permit to cross over to Pakistan.
- The corridor was built to commemorate the 550th birth anniversary celebrations of Guru Nanak Dev, founder of Sikhism on 12th November 2019.

Guru Nanak

- Guru Nanak Dev Jayanti is observed on the full-moon day in the month of Katak to celebrate the birth of Guru Nanak Dev (1469-1539).

Tulagi Island

- Tulagi is an island within the Solomon Islands, which are located in the South Pacific, directly between Australia and the U.S.
- The Solomon Islands has recently cut its ties to Taiwan and allied with Beijing.
- The move is line with ‘One China’ principle.
  - China considers Taiwan to be part of its territory and wants to bring the island back into its fold.
  - Taiwan split from mainland China during a civil war in 1949 and set up a rival government.

Developing Country Status in WTO

The South Korean Government has decided not to seek any special treatment as a developing country from...
future negotiations at the World Trade Organization (WTO).

- However, South Korea would not forego its developing country status at the WTO.
  - South Korea, Asia’s fourth-largest economy, has maintained its developing country status as a member of the WTO since the body’s creation in 1995, mainly to guard its agriculture industry. For ex., it imposes a tariff of more than 500% on rice imports.

**Developing Country Status in WTO**

- There are no WTO definitions of “developed” and “developing” countries. Members announce for themselves whether they are “developed” or “developing” countries.
  - However, other members can challenge the decision of a member to make use of provisions available to developing countries.

  - “Special and Differential Treatment” (S&D) provisions of WTO give developing countries special rights. It includes:
    - Longer time periods for implementing agreements and commitments,
    - Measures to increase trading opportunities for developing countries,
    - Provisions requiring all WTO members to safeguard the trade interests of developing countries,
    - Support to help developing countries build the capacity to carry out WTO work, handle disputes, and implement technical standards, and
    - Provisions related to least-developed country (LDC) Members.

- Benefits to Developing Countries in the WTO:
  - The WTO Agreement specifies that international trade should benefit the economic development of developing and least-developed countries.

- General Agreement on Tariffs and Trade (GATT) — gives developing countries the right to restrict imports, if doing so would promote the establishment or maintenance of a particular industry, or assist in cases of balance-of-payments difficulties.
  - The concept of non-reciprocal preferential treatment for developing countries, i.e. when developed countries grant trade concessions to developing countries they should not expect the developing countries to make matching offers in return.

- Issues:
  - Recently, the U.S. had put pressure on the WTO to change how it designates developing countries, singling out China, with which the United States is engaged in a trade war, for unfairly getting preferential treatment.

**Trade War**

- Trade war is a subset of Trade Protectionism.
  - It is a conflict between two or more nations regarding trade tariff imposition on each other’s goods.
  - A trade war is usually initiated when a nation imposes tariffs or quotas on imports and foreign countries retaliate with similar forms of trade protectionism. As it escalates, a trade war reduces international trade.

**Way Forward**

- Thus, negotiations should provide for differentiated treatment taking into account the policy-making challenges in developing countries without establishing permanent exemptions. These provisions should either be time-bound or have clear threshold and phaseout criteria, as in the WTO Agreement on Subsidies and Countervailing Measures.
Nuclear Energy Conclave

The 11th Nuclear Energy Conclave, organized by the India Energy Forum, was held in New Delhi on 18th October 2019.

- The theme of the Conclave was: “Economics of Nuclear Power-Innovation towards Safer & Cost Effective Technologies”.
- India Energy Forum which was established in 2001 has acquired a unique status as a spokesman of total energy sector. It’s Corporate Office is located in New Delhi.

India’s Nuclear Energy Programme

- The nuclear energy programme in India was launched around the time of independence under the leadership of Homi J. Bhabha.
- The main objectives of the Indian Nuclear Energy programme are to provide safe and reliable electric power for the country’s social and economic progress and to be self reliant in all aspects of nuclear technology.
- India has limited reserves of uranium but fairly abundant reserves of thorium.
- Accordingly, India has adopted a three stage strategy of nuclear power generation:
  - **Stage 1 Pressurised Heavy Water Reactor (PHWR):**
    - The PHWR is a pressure tube type reactor using heavy water (D2O) moderator, heavy water coolant and natural uranium dioxide fuel.
    - Considering the growing energy demands and the necessity to increase the energy potential, a second line of light water reactors have been added to the current indigenous programme of Pressurised Heavy Water Reactors.
  - **Stage 2 Fast Breeder Reactor (FBR):**
    - India’s second stage of nuclear power generation uses Plutonium (Pu-239) obtained from the first stage reactor operation, as the main fissile element of fuel core in fast breeder reactors (FBR).
    - The Fast Breeder Programme is at the technology demonstration stage.
  - **Stage 3 Thorium based Reactor:**
    - Thorium utilization is the long term objective of the Indian Nuclear Power Programme.
    - The third phase of India’s Nuclear Power Generation programme is breeder reactor based on Thorium-Uranium cycle.

Status of Nuclear Energy in India

- Owing to the waiver of the Nuclear Suppliers Group (NSG) to India in 2008, the nuclear programme of country now has much less constraints.
  - The waiver paved the way for India to engage in nuclear trade and led to the Indo-US Civil Nuclear Deal. India has also signed civilian nuclear cooperation agreements with the U.S., U.K., France, Canada, Argentina, Australia and Russia, among others.
  - There is an early movement on Fast Breeder Reactors (FBR) deployment and early deployment of indigenous Light Water Reactors (LWRs).
  - Light-water reactors (LWRs) are power reactors that are cooled and moderated with ordinary water. There are two basic types: the Pressurized-Water Reactor (PWR) and the Boiling-Water Reactor (BWR).
  - PWR is a power reactor in which the heat is dissipated from the core using highly pressurized...
water (about 160 bar) to achieve a high temperature and avoid boiling within the core. BWR is a nuclear reactor with water as a coolant and as a moderator, boiling in the core. The resulting steam is generally used directly to drive a turbine.

**Cyber Attacks**

Recently, the Nuclear Power Corporation of India Ltd. (NPCIL) has confirmed that malware had infected its system at the Kudankulam Nuclear Power Plant (KKNPP).

- The malware named ‘Dtrack’ is a new spyware tool that is believed to be actively targeting a large number of Indian institutions, in order to steal confidential data as well as a remotely downloading malicious tool- tracking key logs and monitoring IP (internet protocol) traffic.
  - Dtrack was originated in North Korea by the hackers’ group Lazarus.

- The recent cyberattack revived the memories of the Stuxnet virus attack on an Iranian nuclear facility in 2018.
  - Cyberattack is a malicious and deliberate attempt by an individual or organization to breach the information system of another individual or organization.
  - There are various types of cyberattacks like malware, phishing, denial of service attacks, etc.

**Report on Cyber Attacks**

- According to the U.S. global computer security software company McAfee, the month of October 2019 saw the most terrible cyberattacks.
  - Malware like ‘Ghostcat’ infects a user when the user visits a particular website and is served with a malicious advertisement. It collects the device information and eventually leads the user to malicious content. It targets mobile devices in general.
  - ‘MedusaLocker’ is ransomware (a type of malware) that makes its way into users’ devices by encrypting files.
  - According to the report, a technique called stenography is used which can hide malicious code inside a file that appears normal and allow hackers to bypass security software and firewalls.

**Way Forward**

- Real-time intelligence is required for preventing and containing cyber attacks. To achieve that, India needs to secure its computing environment and the Internet of Things (IoT) with current tools, patches, updates and best-known methods in a timely manner.

**Microbial Fuel Cells**

Recently, at a London Zoo, a fern started taking its own selfies. The Zoological Society of London (ZSL) scientists had laid the groundwork with the aim of using plants to power camera traps and sensors in the wild.

- This was achieved by installing the microbial fuel cells in Pete (a maidenhair fern).

**Microbial fuel cells**

- A microbial fuel cell (MFC) is a device that converts chemical energy to electrical energy by the action of microorganisms.
- It is a bio-electrochemical system that uses bacteria as the catalyst to oxidize organic and inorganic matter, and consequently, generate electric current out of it.
  - Plants naturally deposit biomatter as they grow which in turn feeds the natural bacteria present in the soil. This creates energy that can be harnessed by fuel cells.
- It has applications in various fields such as power generation systems, bio-recovery, waste-water treatment, etc.

**Edge Computing**

Edge computing is defined as the deployment of data-handling activities from centralized and always-connected network segments (like Dropbox, Gmail, etc.) and toward individual sources of data capture, such as endpoints like laptops, tablets.

- It is an extension of cloud computing, and differs in terms of time taken in processing the information. The data is analysed locally, closer to where it is stored, in real-time without latency.

**Advantages of Edge Computing**

- Edge computing allows for quicker data processing and content delivery while streaming a video.
Future Technology like 5G wireless technology and artificial intelligence enable faster response times, lower latency (delay), and simplified maintenance in computing.

It is preferred over cloud computing in remote locations, as this works with local storage, similar to a mini data centre.

An edge computing network reduces the amount of data that travels over the network which makes it data efficient.

Cloud Computing

- It is the delivery of different services through the Internet. These resources include tools and applications like data storage, servers, databases, networking, and software.
- Cloud-based storage saves files on a remote database. As long as an electronic device has access to the web, it has access to the data and the software programs to run it.

World Polio Day

World Polio Day was established by Rotary International on 24th October to celebrate the birth of Jonas Salk, who developed a vaccine against poliomyelitis.

- The establishment of the Global Polio Eradication Initiative (GPEI) in 1988 reduced polio worldwide by 99%.
- World Polio Day (2019) marked a milestone in polio eradication as the independent Global Commission for the Certification of Poliomyelitis Eradication (GCC) has declared Wild Polio Virus type 3 to be globally eradicated.
  - It follows the eradication of smallpox and wild poliovirus type 2.

Wild Polio Virus type 3

- There are three individual and immunologically distinct wild poliovirus strains: Wild Polio Virus type 1 (WPV1), Wild Polio Virus type 2 (WPV2) and Wild Polio Virus type 3 (WPV3).
- Symptomatically, all three strains are identical but there are genetic and virological differences, which makes these three strains three separate viruses that must each be eradicated individually.
- WPV2 and WPV3 have been eradicated globally but WPV1 remains in circulation in just two countries namely, Afghanistan and Pakistan.

Polio

- Polio is a crippling and potentially fatal viral infectious disease.
- There is no cure, but can be prevented through immunization.
- The strategy to eradicate polio is therefore based on preventing infection by immunizing every child until transmission stops.
- There are two types of vaccines to prevent infection.
  - OPV (Oral Polio Vaccine): It is given orally as a birth dose for institutional deliveries, then primary three doses at 6, 10 & 14 weeks and one booster dose at 16-24 months of age.
  - Injectable Polio Vaccine (IPV): It is introduced as an additional dose along with the 3rd dose of DPT under the universal immunization programme (UIP).
- India received polio-free certification by the World Health Organisation (WHO) in 2014.
  - Eradication of a disease refers to the complete and permanent worldwide reduction to zero new cases of an infectious disease through deliberate efforts. If a disease has been eradicated, no
Guidelines for Evaluation of Nanopharmaceuticals in India

Recently, the Government of India released “Guidelines for Evaluation of Nanopharmaceuticals in India”.

- There are no internationally accepted uniform guidelines for nano-pharmaceuticals.
- It takes into account the physical, chemical and biological characteristics of the nano-material used and the product, and the indication for which the product is intended to be used and other related aspects.

Nanopharmaceuticals

- Nanopharmaceuticals is defined as a pharmaceutical preparation containing nanomaterials intended for internal use or external application on a human for the purpose of therapeutics, diagnostics and health benefits.
- The nanomaterial is defined as material having a particle size in the range of 1 to 100 nm in at least one dimension.
- Nano-formulations are not entirely new drugs but medicines that have better quality because of the technology-led delivery mechanisms that are used to make its administration in the body more effective.

Nanopharmaceuticals Guidelines

- These guidelines have been developed in line with the provisions of Schedule Y of Drugs and Cosmetics Rules, 1945 as well as Second Schedule of the New Drugs and Clinical Trials Rules, 2019 with specific requirements for nanopharmaceuticals.
- The guidelines include:
  - The nano-size range should be declared in the product specification.
  - The detailed methods of the manufacturing process and the impact of nanomaterial waste disposal on the environment should also be declared.
  - The added advantage and possible disadvantage of nanopharmaceuticals in comparison to conventional/traditional drug/API should be clearly stated on the products.
    - However, Nanocarrier based targeted drug delivery and nanof ormulations have higher efficacy, lower toxicity and are safer than the conventional drugs.
    - A Nanocarrier is a nanomaterial being used as a transport module for another substance like a drug.
    - The stability testing for Nanoformulations should focus on functionality, integrity, size range of nanopharmaceuticals.
  - It will cover nanopharmaceuticals in the form of finished formulation as well as Active Pharmaceutical Ingredient (API) of a new molecule or an already approved molecule with altered nanoscale dimensions, properties.
    - It also covers the phenomenon associated with the application of nanotechnology intended to be used for treatment, in vivo diagnosis, mitigation, cure or prevention of diseases and disorders in humans.

Advantages of Guidelines

- Indian researchers and industry would be facilitated to undertake research in nanopharmaceuticals product development and commercialization.
- The guidelines will pave the way for significant benefits through such cutting edge technology and contribute to the mission of “Affordable Health Care for All”.

Artificial Leaf For Clean Gas

Scientists have developed an ‘artificial leaf’ device that uses sunlight to produce a syngas currently made from fossil fuels.
- It is a carbon-neutral device and could be used to create a sustainable liquid fuel alternative to petrol.
Unlike the current industrial processes for producing syngas, the leaf does not release any additional carbon dioxide into the atmosphere.

- **Syngas (Synthesis Gas)** is currently made from a mixture of hydrogen and carbon monoxide and is used to produce fuels, pharmaceuticals, plastics, and fertilizers.
- The syngas is produced by gasification of a carbon-containing fuel to a gaseous product that has some heating value.
- The general raw materials used for gasification (creation of syngas) are coal, petroleum-based materials, etc.

The name syngas is derived from the use as an intermediate in generating **synthetic natural gas** and to create ammonia or methanol. It is a gas that can be used to synthesize other chemicals, hence the name synthesis gas, which was shortened to syngas.

- Rather than running on fossil fuels, the artificial leaf is powered by sunlight.
- The device is inspired by photosynthesis—the natural process by which plants use the energy from sunlight to turn carbon dioxide into food.
Wildfires

As per the latest data from Sentinel-3 World Fire Atlas there were almost five times as many wildfires across the world in August 2019 compared to August 2018.

- There were 79,000 fires in August 2019 as compared to just over 16,000 fires detected in August 2018.
- 49% (nearly half) of the fires were detected in Asia, around 28% were detected in South America, 16% in Africa, and the remaining were recorded in North America, Europe and Oceania.
- It is to be noted that August and September 2019 were the months which witnessed fires in the Amazon rainforest.

Mountain Streams Emits Carbon Dioxide

Recently the first large-scale study of the carbon dioxide emissions from mountain streams, and their role in global carbon fluxes has been released.

- Mountains cover 25% of the Earth’s surface, but the streams make up just 5% of the global surface area of the fluvial networks.
- The emissions from mountains form a major part of the Global Carbon Cycle.
- The study specifically focused on their hydrologic and geomorphologic properties as well as the soil organic carbon content within the catchments of the mountainous region.

Findings of the Study

- Researchers found that these streams have a higher average CO₂ emission rate per square meter than streams at lower altitudes, due to the additional turbulence caused as water flows down the mountain slopes.
- The gas exchange velocities across the air-water interface in mountain streams occurs 100 times faster than regular flow.
- The findings seem to indicate that the CO₂ comes from geological sources as carbonate rock dominates geology in numerous regions around the world.
Global Carbon Cycle
- It refers to the exchanges of carbon within and between four major reservoirs: the atmosphere, the oceans, land, and fossil fuels.
- Carbon may be transferred from one reservoir to another in seconds (e.g., the fixation of atmospheric \( \text{CO}_2 \) into sugar through photosynthesis) or over millennia (e.g., the accumulation of fossil carbon like coal, oil, gas through deposition of organic matter.

Asiatic Water Buffalo

Recently, due to anthrax, two Asiatic Water Buffalo died in the Pobitora Wildlife Sanctuary.
- The Asiatic Wild Water Buffalo, scientifically known as *Bubalus Arnee*, is known to be found in the Central Indian Forests and is mostly restricted to the states of Assam, Arunachal Pradesh and Madhya Pradesh.
  - It has been recently found in the forests of Maharashtra after which the Maharashtra Government declared the Kolamarka forest area as a conservation reserve for the Asiatic Wild Buffalo.
- Asian buffalo has the widest horn span among all bovids found globally. The wild buffalo is mainly found in the alluvial grasslands, marshes, swamps and river valleys.
- The Asiatic wild buffaloes are of enormous economic significance as they are the direct ancestors of all the breeds of the domestic buffaloes.

Pobitora Wildlife Sanctuary
- Pobitora Wildlife Sanctuary has the highest density of one-horned rhinos in the world and second highest concentration in Assam after Kaziranga National Park.
  - It is often called ‘Mini Kaziranga’ due to similar landscape and vegetation.
- The wildlife sanctuary is home to endangered one-horned rhinoceros and the other mammals such as Leopard, Leopard cat, Fishing cat, Jungle cat, Feral Buffalo, Wild pigs, Chinese pangolins, etc.
- There are 5 national parks in Assam namely:
  - Dibru-Saikhowa National Park,
  - Kaziranga National Park,
  - Manas National Park,
  - Nameri National Park,
  - Rajiv Gandhi Orang National Park.

Anthrax
- It is a serious infectious disease that is caused by a bacteria known as Bacillus anthracis.
- Although it is rare but it can sometimes become fatal for humans if they get infected with anthrax when they come in contact with infected animals or contaminated animal products.
- It is characterized by symptoms like blisters on the skin, chest pain, vomiting, diarrhea, and fever.

First Snow Leopard Survey
The Government of India has launched the First National Protocol on Snow Leopard Population Assessment, to mark the occasion of International Snow Leopard Day (23rd October).
The first National Snow Leopard Survey of the nation has been developed by scientific experts in association with the Snow Leopard States/UTs namely, Ladakh, Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh.

The occasion also marked the inaugural session of the 4th steering committee meeting of the Global Snow Leopard & Ecosystem Protection (GSLEP) Program. The GSLEP is a high-level inter-governmental alliance of all the 12 snow leopard range countries. The snow leopard countries are: India, Nepal, Bhutan, China, Mongolia, Russia, Pakistan, Afghanistan, Kyrgyzstan, Kazakhstan, Tajikistan, and Uzbekistan.

It majorly focuses on the need for awareness and understanding of the value of Snow Leopard for the ecosystem. The GSLEP Program (2019) is being organized by the Ministry of Environment, Forest and Climate Change at New Delhi. Currently, the Steering Committee meeting of GSLEP chaired by Nepal and co-chaired by Kyrgyzstan.

**Snow Leopard**

- The snow leopard inhabits the higher Himalayan and trans-Himalayan landscape in the five states of Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh.
- This area contributes to about 5% of the global snow leopard range.
- Snow leopards are categorized as ‘Vulnerable’ by IUCN and in the Schedule I of the Indian Wildlife (Protection) Act 1972.
- They are listed in Appendix I of the Convention on International Trade in Endangered Species (CITES) and the Convention on Migratory Species (CMS), revealing the need for the highest conservation status to the species, both globally and in India.
- Other conservation efforts launched by India are:
  - Project Snow Leopard (PSL): It promotes an inclusive and participatory approach to conservation that fully involves local communities.

- **SECURE Himalaya** is a Global Environment Facility (GEF) – United Nations Development Programme (UNDP) funded project on conservation of high altitude biodiversity and reducing the dependency of local communities on the natural ecosystem. This project is now operational in four snow leopard range states, namely, Jammu and Kashmir, Himachal Pradesh, Uttarakhand, and Sikkim.

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**Convention on the Conservation of Migratory Species of Wild Animals (CMS)**

- It is an environmental treaty under the aegis of the United Nations Environment Programme. It is also referred to as the Bonn Convention.
- It is the only global convention specializing in the conservation of migratory species, their habitats and migration routes.
- India has been a party to the CMS since 1983.

**CITES**

- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement.
- It is legally binding on state parties to the convention, which are obliged to adopt their own domestic legislation to implement its goals.
- The CITES Secretariat is administered by UNEP and is located at Geneva, Switzerland.

**Global Environment Fund (GEF)**

- It is a private equity fund focused on seeking long term financial returns by investments in clean energy under climate change.

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**Tasmanian Tiger**

Tasmania's Department of Primary Industries, Parks, Water and Environment (DPIPWE) has released a document detailing eight reported sightings of the Tasmanian tiger, or thylacine, in the last three years.

- The Tasmanian tiger, or thylacine (a dog headed pouch dog) is an exclusively carnivorous marsupial that is considered to be extinct (as per the IUCN status).
- Thylacine, once, was widespread over continental Australia, extending North to New Guinea and south to Tasmania (an island state of Australia).
- However, it was confined to Tasmania in recent times and disappeared from mainland Australia over 2000
years ago, mainly because of over-hunting by humans, diseases and competition from the Dingo (Canis lupus), a wild dog native to Australia.

- It is also known as the Tasmanian Wolf and bears some resemblance to a dog, with its distinguishing features being the dark stripes beginning at the rear of its body and extending into its stiff tail and abdominal pouch.

### Indian Ocean Dipole (IOD)

- It is an atmosphere-ocean coupled phenomenon in the tropical Indian Ocean (like the El Nino is in the tropical Pacific), characterised by a difference in Sea-Surface Temperatures (SSTs).

- A ‘positive IOD’ — or simply ‘IOD’ — is associated with cooler than normal SSTs in the eastern equatorial Indian Ocean and warmer than normal SSTs in the western tropical Indian Ocean.

- The opposite phenomenon is called a ‘negative IOD’, and is characterised by warmer than normal SSTs in the eastern equatorial Indian Ocean and cooler than normal SSTs in the western tropical Indian Ocean.

- It has been seen that positive IOD year sees more than normal rainfall over central India.

### SAFAR

The System of Air Quality and Weather Forecasting And Research (SAFAR) is a national initiative introduced by the Ministry of Earth Sciences (MoES).

- It measures the air quality of a metropolitan city, by measuring the overall pollution level and the location-specific air quality of the city.

- The system is indigenously developed by the Indian Institute of Tropical Meteorology (IITM), Pune and is operationalized by the India Meteorological Department (IMD).

- SAFAR is an integral part of India’s first Air Quality Early Warning System operational in Delhi.

  - It monitors all weather parameters like temperature, rainfall, humidity, wind speed, and wind direction, UV radiation, and solar radiation.

  - Pollutants monitored: PM2.5, PM10, Ozone, Carbon Monoxide (CO), Nitrogen Oxides (NOx), Sulfur Dioxide (SO2), Benzene, Toluene, Xylene, and Mercury.

- The World Meteorological Organization has recognized SAFAR as a "prototype activity" on the basis of the high-quality control and standards maintained in its implementation.

### Air Quality Index (AQI)

- The AQI is an index for reporting daily air quality.

- It focuses on health effects one might experience within a few hours or days after breathing polluted air.

- AQI is calculated for eight major air pollutants: Ground-level ozone, PM10, PM2.5, Carbon monoxide, Sulfur dioxide, Nitrogen dioxide, Ammonia, Lead.

- Ground-level ozone and airborne particles are the two pollutants that pose the greatest threat to human health in India.
### Highlight's

- Lakshmi Narasimha Temple: Hoysala Architecture
- Rangdum Monastery
- Assamese Bhaona
- Hori Habba
- Goura Gouri Festival
- Excavation Sites of Sangam Age
- 76th Anniversary of Azad Hind Government
- Petta Thullal

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### Lakshmi Narasimha Temple: Hoysala Architecture

- **The 13th century Lakshmi Narasimha temple in Bhadravati (Karnataka) is being renovated.**

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**About Lakshmi Narsimha Temple**

- The temple was built during **Hoysala rule** in the **early 13th century**.
- It is built in ‘**Trikuta’** style, that is, having **three shrines**- dedicated to Lakshmi Narasimha, Venugopalaswamy and Purushothama.
- The outer walls of the temple bear **great detailed carvings** in Hoysala style.
- The **concrete flooring** on the **platform**, also called **jagati**, is used by devotees as pradakshina path (passageway for circumambulation).

**About Hoysala Architecture**

- Hoysala architecture is the building style developed under the rule of the Hoysala Empire between the 11th and 14th centuries, mostly **concentrated in southern Karnataka**.
- Hoysala temples are sometimes called **hybrid or vesara** as their unique style seems neither completely Dravida nor Nagara, but somewhere in between.
- The Hoysala temples, instead of consisting of a simple inner chamber with its pillared hall, contain multiple shrines grouped around a central pillared hall and laid out in the shape of an intricately-designed star.
- The most characteristic feature of these temples is that they grow **extremely complex** with so many projecting angles emerging from the previously straightforward square temple, that the plan of these temples starts looking like a **star**, and is thus known as a **stellate-plan**.
- Since they are made out of **soapstone** which is a relatively soft stone, the artists were able to carve their sculptures intricately. This can be seen particularly in the jewellery of the gods that adorn the temple walls.
- They are easily distinguishable from other medieval temples by their highly original star-like ground-plans and a profusion of decorative carvings.
- Some of the famous temples are: **Hoysaleshvara temple** (Lord of the Hoysalas) at **Halebid in Karnataka** that was built in dark schist stone by the Hoysala king.
in 1150, **Chennakeshava temple** in Somnathpura, Karnataka built around AD 1268 under Narasimha III, **Kesava temple** at Belur in Hassan district of Karnataka built by Vishnuvardhana.

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**Rangdum Monastery**

The **Archaeological Survey of India (ASI)** is planning to declare the **Rangdum Monastery** located in Ladakh (Kargil district) as a **monument of national importance**.

- The move aims to look into the opportunities for expansion of tourism in the Ladakh region in the backdrop of the decision to split Jammu and Kashmir into two **Union Territories**.
- **Rangdum Monastery** is the 18th century built monastery that is situated at an altitude of 4,031 meters at the head of the Suru Valley, in Ladakh.
  - Suru Valley is drained by the Suru River which is a tributary of the Indus River.
- **Rangdum Monastery** is a Tibetan Buddhist monastery belonging to the Gelugpa sect.

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**Assamese Bhaona**

Recently, Bhaona performers from Assam made a foreign debut in Abu Dhabi.

- **Bhaona** is a **traditional** form of entertainment.
  - A Bhaona involves dialogues, songs, and dances.
  - It usually involves 40-50 performers wearing costumes and ornaments including those playing heavy drums and cymbals.
  - The actors who perform it are known as **Bhaoriya**.
- It was the creation of **Sankardeva** (a Vaishnava saint born in 1449 A.D in Nagaon district of Assam. He started the neo-Vaishnavite movement).

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**Hori Habba**

’**Hori Habba’**, is a popular bull-catching event in Karnataka.

- It is held during the **harvest season**. It is an ancient folk game native to Haveri district, and played on the lines of **Jallikattu** in Tamil Nadu and **Kambala** in Dakshina Kannada district.
- The government has not been allowing these traditional games to be played following a ban on such sports by the Supreme Court in **2017**.

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**Goura Gouri Festival**

**Goura - Gauri** festival celebrates the pastoral life of the people of Chhattisgarh.

- The gathering sees the rituals of ‘gedi’, ‘raut nacha’ and ‘panthi nritya’ in the traditional attire.
  - **Gedi** is a form of dance of the Gond people, who are spread widely throughout Madhya Pradesh and Chhattisgarh, and is one of India’s prominent tribal groups.
  - **Gedi** is a pair of bamboo stilts with footrests. The dancers strike the stilts on the ground to produce simple rhythmic beats.
  - **Raut Nacha** is a traditional dance of the Yadav community. In this dance, the Rauts, wearing a special costume, sing and dance in a group with sticks in their hands in the pathways of the village.
  - **Panthi Nritya** is performed by the Satnami community of Chhattisgarh. Songs related to dance depicts the importance of human life with strong spiritual messages with prime focus on omnipotent devotion.
- **Surti, Hareli, Pola and Teeja** are some other festivals of the state.
Excavation Sites of Sangam Age

The Archaeological Survey of India (ASI) has approved Tamil Nadu’s request to continue excavations at four locations including Keeladi.

- This development is expected to bridge the 1000 year gap in history between the Sangam Age and the Indus Valley civilization.
- The excavation will be undertaken at the following sites:
  - **Keeladi:**
    - Located in Sivaganga district on the banks of river Vaigai.
    - It is an urban settlement of the Sangam Age.
    - The recent excavations at Keeladi artifacts are 300 years older than previously believed — 3rd century BCE.
  - **Kodumanal**
    - It is a village located in Erode district, Tamil Nadu.
    - It was a flourishing ancient trade city, known as Kodumanam (as inscribed in Pathitrupathu of Sangam Literature).
    - It is located on the northern banks of Noyyal River (a tributary of the Cauvery).
  - **Sivagalai**
    - It is a village in the Tuticorin district, Tamil Nadu.
    - It was once known as ‘Small Ceylon’ by Britishers.
    - Evidence of megalithic archaeological remains was found here in 2018.
  - **Adichanallur**
    - It is located in Thoothukudi district, Tamil Nadu.
    - In 2004, iron-age (1500 BC to 500 BC) burial sites were unearthed by ASI from here.

Sangam Age
- The word ‘Sangam’ is the Tamil form of the Sanskrit word ‘Sangha’ which means a group of persons or an association.
- The Sangam literature was largely consolidated from the third Sangam and provides information on conditions of life of people around the beginning of the Christian era.
- The Age of the Sangam refers to the age to which Sangam literature belonged.

Vaigai River
- It is an east-flowing river.
- The Vaigai river basin is an important basin among the 12 basins lying between the Cauvery and Kanyakumari.
- This basin is bounded by the Cardamom Hills and the Palani Hills on the West and by the Palk Strait and Palk Bay on the East.

Indus Valley Civilisation
- It flourished around 2,500 BC, in the western part of South Asia, in contemporary Pakistan and Western India.
- The Indus Valley was home to the largest of the four ancient urban civilizations of Egypt, Mesopotamia, India, and China.
- In the 1920s, the Archaeological Department of India carried out excavations in the Indus valley wherein the ruins of the two old cities, viz. Mohenjodaro and Harappa were unearthed.

76th Anniversary of Azad Hind Government

The 76th anniversary of the formation of the Azad Hind Government was celebrated on 21st October, 2019, at the Red Fort, Delhi.

Azad Hind Government
- On 21st October 1943, Subhash Chandra Bose announced the formation of the Provisional Government of Azad Hind (Free India) in Singapore, with himself as the Head of State, Prime Minister and Minister of War.
- The Provisional Government not only enabled Bose to negotiate with the Japanese on an equal footing.
but also facilitated the mobilisation of Indians in East Asia to join and support the **Indian National Army (INA)**.

- The struggle for independence was carried on by Subhash Chandra Bose from abroad. He found the outbreak of the Second World War to be a convenient opportunity to strike a blow for the freedom of India.
- Bose had been put under house arrest in 1940 but he managed to escape to Berlin on March 28, 1941. The Indian community there acclaimed him as the leader (Netaji). He was greeted with ‘Jai Hind’ (Salute to the motherland).
- In 1942, the **Indian Independence League** was formed and a decision was taken to form the Indian National Army (INA) for the liberation of India.
- On an invitation from Ras Bihari Bose, Subhash Chandra Bose came to East Asia on June 13, 1943. He was made president of the Indian Independence League and the leader of the INA popularly called ‘Azad Hind Fauj’.
- He gave the famous battle cry ‘Dilli Chalo’. He promised independence to Indians saying, ‘tum mujhe khoon do, main tumhe Azadi dunga’ (You give me blood, I will give you freedom).

### Petta Thullal

- Petta Thullal is the **ritualistic sacred dance** to celebrate the victory of good over evil in the legend of **Lord Ayyappa** who killed the demon princess Mahish.
- It denotes the beginning of the last leg of the annual **Sabarimala pilgrimage season in Kerala**.

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Note:
National Health Profile 2019

The 14th edition of National Health Profile and its e-book (digital version) has been released by the Central Bureau of Health Intelligence (CBHI).

CBHI has been publishing the National Health Profile (NHP) since 2005 and its digital version since 2015.

The objective of this publication is to create a versatile database of health information of India and making it available to all stakeholders in the healthcare sector.

The NHP highlights substantial health information under major indicators viz.

- Demographic indicators: population and vital statistics.
- Socio-economic indicators: education, employment, housing and amenities, drinking water and sanitation.
- Health status indicators: incidence and prevalence of common communicable and non-communicable diseases.
- Health finance indicators: health insurance and expenditure on health.
- Health infrastructure: details of Medical and Dental Colleges, AYUSH Institutes, Nursing Courses, and Paramedical Courses

Key Findings

- Life Expectancy:
  - Life expectancy in India has increased from 49.7 years in 1970-75 to 68.7 years in 2012-16. For females it is 70.2 years and 67.4 years for males.
  - Life expectancy refers to the number of years a person is expected to live based on the statistical average.

- Infant Mortality Rate (IMR):
  - The IMR has declined considerably (33 per 1,000 live births in 2016), however, differentials of rural (37) & urban (23) are still high.
  - The infant mortality rate is the number of deaths under one year of age occurring among the live births in a given geographical area during a given year per 1,000 live births.

- Population Growth Rate:
  - There has been a consistent decline in the birth rate (20.2), the death rate (6.3) and the natural growth rate (13.9) in India from 1991 to 2017.
  - The number of live births per thousand of the population per year is termed as birth rate.
  - The number of deaths per year per thousand of the population in a given area is termed as the death rate.
  - The difference between the number of live births and the number of deaths occurring in a year, divided by the mid-year population of that year, multiplied by a factor (usually 1,000) is termed as Natural Growth Rate.

- Demographics:
  - It found the high incidence of the young and economically active population.
  - It reports that 27% of the population below 14 years, 64.7% in the age group of 15-59 and 8.5% above 60 years.

- Total Fertility Rate (TFR):
  - NHP reports TFR of 2.3 for the country where it is 2.5 for rural areas and 1.8 for urban areas.
  - TFR measures the number of children born to a woman at the end of the childbearing age.
Central Bureau of Health Intelligence (CBHI)

- Central Bureau of Health Intelligence (CBHI) was established in 1961 under the Directorate General of Health Services with the vision to have “A strong Health Management Information System (HMIS) in the entire country”.

National Symposium on Lymphatic Filariasis

A National Symposium on the theme ‘United to Eliminate Lymphatic Filariasis’ was inaugurated recently.

- The Indian government has also signed the ‘Call to Action to eliminate Lymphatic Filariasis by 2021’.

Lymphatic Filariasis

- Lymphatic filariasis, commonly known as elephantiasis and is considered a neglected tropical disease.
- It impairs the lymphatic system and can lead to the abnormal enlargement of body parts, causing pain, severe disability, and social stigma.
- Lymphatic filariasis is a vector-borne disease, caused by infection with parasites classified as nematodes (roundworms) of the family Filarioidea.

India’s Initiative

- The Government launched the Accelerated Plan for Elimination of Lymphatic Filariasis (APELF) in 2018, as part of intensifying efforts towards its elimination.
- It has adopted a twin pillar strategy - prevention through Mass Drug Administration (MDA) using a combination of 2 anti-filarial drugs (DEC and Albendazole) and providing Morbidity Management and Disability Prevention (MMDP) services to those affected by the disease.
- The government is ready to scale-up the use of Triple Drug Therapy (IDA) in a phased manner starting from December 2019.

Global Programme to Eliminate Lymphatic Filariasis (GPELF)

- In 2012, the WHO neglected tropical diseases roadmap reconfirmed the target date for achieving elimination by 2020.

Draft Notification for Medical Implants

A draft notification, issued by the Ministry of Health and Family Welfare, has proposed to bring "all devices" used for medical application, under the purview of Drugs and Cosmetics Act, 1940. This will make “all devices” to be termed as “drugs”.

- All devices will include medical instruments, apparatus, appliance, implant, material or other article, whether used alone or in combination, including software or an accessory, especially for human beings or animals.
- Manufacturers and importers of most of these devices will have at least 1.5 years to voluntarily register with the Central Drugs Standard Control Organisation.

The Rationale Behind the Draft Notification

- Defective implants can cause crippling pain and even death. For ex., Johnson and Johnson’s faulty hip implants.

Johnson and Johnson’s faulty hip implants case

- In 2018, Johnson and Johnson’s hip implant called Pinnacle was found to be leaking the cobalt-chromium ions into the body, leading to serious health complications, including metal poisoning of the blood, debilitating pain, and damage to the body organs.
- Further, Johnson and Johnson have paid compensations to US patients who had received the defective implants. However, in India, the company challenged government orders to compensate 4,700 patients who had undergone hip replacement surgeries.
- At present in India, there are no specific legal provisions to provide compensation to patients in such cases.

Impact

- If implemented, the country’s drug regulator will enforce standards to ensure the safety and effectiveness of
these products while its pricing regulator will monitor the prices.

- Central Drugs Standard Control Organisation (CDSCO) is drug regulator in India.
  - It applies the provisions of the Drugs and Cosmetics Act, as well as the Medical Devices Rules 2017 on all medical devices.
  - It can also punish for violations as per the Act.
- The National Pharmaceutical Pricing Authority (NPPA) monitor the prices of drugs. NPPA is an organization under Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers, set up in 1997.

Merely expanding the scope of regulation to all devices is not enough in a moment of growing number of safety disasters involving devices. There is a pressing need for framing of a new medical devices act.

PM National Dialysis Programme

Recently, the Health Ministry issued guidelines for establishing peritoneal dialysis services under the Pradhan Mantri National Dialysis Programme.

- There are two main types of dialysis namely: Hemodialysis, and Peritoneal dialysis.
- Peritoneal dialysis, people will have access to the treatment option that could be performed at home (as in hemodialysis, treatment needs to be performed at a designated dialysis centre).
- The peritoneal dialysis avoids the substantial costs of infrastructural set-up, maintenance, and staffing.

PM National Dialysis Programme

- The programme was announced by the Ministry of Health & Family Welfare in 2016 under the National Health Mission (NHM) in PPP (Public-Private Partnership) model.
- It aims to provide free dialysis services to the poor.
- The first phase of the programme envisaged setting up of hemodialysis centres in all districts of the country.
- Financing:
  - For Below Poverty Line (BPL) economic group: 100% expenses are directly covered under NHM by the government.
  - For non-BPL patients: They can get treated at the district hospitals by paying the same rates as paid by the government for the BPL patient.

Dialysis

- Dialysis is a treatment that does some of the functions by healthy kidneys. It is needed when one develops an end-stage kidney failure.
- Dialysis maintains balance of body by:
  - Removing waste, salt and extra water to prevent them from building up in the body.
  - Keeping a safe level of certain chemicals in your blood, such as potassium, sodium and bicarbonate.
  - Helping to control blood pressure.

National Health Mission

- National Health Mission (NHM) was launched by the government of India in 2013 subsuming the National Rural Health Mission and the National Urban Health Mission.
  - It was further extended in March 2018, to continue till March 2020.
  - The NHM envisages achievement of universal access to equitable, affordable & quality health care services that are accountable and responsive to people’s needs.

Mission Indradhanush

The Government will launch the second phase of nationwide immunisation drive i.e. Intensified Mission Indradhanush 2.0, to mark the 25 years of Pulse polio programme.

- Intensified Mission Indradhanush 2.0 aims to achieve at least 90% pan-India immunisation coverage by 2022.
- Mission Indradhanush, that was launched in December 2014, has increased India’s immunisation coverage significantly to 87% from 67% in 2014.
  - However, official data on India’s immunisation coverage is still 62%, as given in the National Family Health Survey-4 (2015-16).

Immunization Programme in India

- Immunization Programme in India was introduced in 1978 as ‘Expanded Programme of Immunization (EPI) by the Ministry of Health and Family Welfare.
- In 1985, the Programme was modified as ‘Universal Immunization Programme (UIP)’. The stated objectives of the Programme include:
  - Rapidly increasing immunization coverage.

Note:
Improving the quality of services.
- Establishing a reliable cold chain system to the health facility level.
- Introducing a district-wise system for monitoring of performance.
- Achieving self-sufficiency in vaccine production.

- UIP prevents mortality and morbidity in children and pregnant women against 12 vaccine preventable diseases. But in the past it was seen that the increase in immunization coverage had slowed down and it increased at the rate of 1% per year between 2009 and 2013.

- To accelerate the coverage, Mission Indradhanush was envisaged and implemented since 2015 to rapidly increase the full immunization coverage to 90%.

**Mission Indradhanush**
- The aim is to fully immunize more than 89 lakh children who are either unvaccinated or partially vaccinated under UIP.
- It targets children under 2 years of age and pregnant women for immunization.
- It provides vaccination against 12 Vaccine-Preventable Diseases (VPD) i.e. diphtheria, Whooping cough, tetanus, polio, tuberculosis, hepatitis B, meningitis and pneumonia, Haemophilus influenzae type B infections, Japanese encephalitis (JE), rotavirus vaccine, pneumococcal conjugate vaccine (PCV) and measles-rubella (MR).
- However, Vaccination against Japanese Encephalitis and Haemophilus influenzae type B is being provided in selected districts of the country.

- The rate of increase in full immunization coverage increased to 6.7% per year through the first two phases of ‘Mission Indradhanush’.

**Intensified Mission Indradhanush**
- The Intensified Mission Indradhanush (IMI) was launched by the Government of India in 2017 to reach each and every child under two years of age and all those pregnant women who have been left uncovered under the routine immunisation programme.

- Under IMI, greater focus has been given on urban areas which was one of the gaps of Mission Indradhanush.

- The target under IMI was to increase the full immunization coverage to 90% by December 2018. However, only 16 districts in the country have achieved 90% coverage so far.

- The Intensified Mission Indradhanush 2.0 will target the districts which have immunisation coverage of 70% or below.

**Pulse Polio Immunization Programme**
- With the global initiative of eradication of polio in 1988 following World Health Assembly resolution in 1988, Pulse Polio Immunization programme was launched in India in the financial year 1994-95.
- It was started with an objective of achieving hundred percent coverage under Oral Polio Vaccine.
- Children in the age group of 0-5 years administered polio drops during national and sub-national immunization rounds (in high risk areas) every year.

- The World Health Organization (WHO) on 24th February 2012 removed India from the list of countries with active endemic wild poliovirus transmission and in 2014, India was declared Polio free.

- As a risk mitigation measure, the country has also introduced Inactivated Polio Vaccine across the country in all states.

**Union World Conference on Lung Health**
- The Vice-President of India inaugurated the 50th Union World Conference on Lung Health at Hyderabad.

- The theme of the conference is ‘Ending the Emergency: Science, Leadership, Action’.

- The conference theme resonates strongly with TB, but it also raises awareness that all threats to lung health – TB, air pollution, tobacco and many more – are emergencies that our science, leadership, and action need to meet head-on.

- It is the world’s largest gathering of stakeholders organized by the International Union Against Tuberculosis (IUAT).

- It is being organized since 1920.

- India provides a unique backdrop for discussions on ending Tuberculosis (TB) and lung disease with
the current highest burden of TB in the world, and ambitious targets to eliminate TB by 2025.

- An agreement was also reached to lower the price of rifapentine (a critically important drug used to prevent tuberculosis).

**International Union Against Tuberculosis**

- International Union Against Tuberculosis (IUAT) was founded at the post-war conference, held in Paris in 1920.
- It became the first NGO to be officially recognized by WHO in 1940.
- The IUAT plays a central role in international clinical trials to determine the best ways to use the new tools for TB treatment and co-founds the TB Surveillance Research Unit.

**Tuberculosis (TB)**

- It is an infectious disease caused by the bacterium Mycobacterium tuberculosis. It is spread through the air from people suffering from TB.
- A single patient can infect ten or more people in one year. TB remains a major public health problem in India, with the country accounting for 26% of all TB cases reported globally.
- The Bacillus Calmette–Guérin (BCG) vaccine used for TB was developed by Albert Calmette and Camille Guérin in 1921.
- It is treatable and curable disease. It is treated with a standard 6 month course of 4 antimicrobial drugs that are provided with information, supervision and support to the patient by a health worker or trained volunteer.
- Multidrug-resistant tuberculosis (MDR-TB) is a form of TB caused by bacteria that do not respond to isoniazid and rifampicin, the 2 most powerful first-line anti-TB drugs.

**Global Tuberculosis Report 2019: WHO**


- The report provides a comprehensive and up-to-date assessment of the TB epidemic and progress in the response at global, regional and country levels for India.
- WHO has been publishing global TB report every year since 1997.

**Key Findings**

- TB remains the top infectious killer in the world claiming over 4,000 lives a day.
- Geographically, most TB cases in 2018 were in the WHO regions of South-East Asia (44%), Africa (24%) and the Western Pacific (18%).
- Eight countries that accounted for two thirds of the global total include India (27%), China (9%) and Indonesia (8%).
- MultiDrug Resistant TB
  - In 2018, there were about half a million new cases of rifampicin-resistant TB (of which 78% had multidrug resistant TB).
  - The three countries with the largest share of the global burden were India (27%), China (14%) and the Russian Federation (9%).
- TB Diagnosis
  - Globally, 7.0 million new cases of TB were notified in 2018 – an increase from 6.4 million in 2017.
  - Most of the increase in global notifications of TB cases since 2013 is explained by trends in India and Indonesia, the two countries that rank first and third worldwide in terms of estimated incident cases per year.
- Concerns
  - There is a gap between the number of notified TB patients and the number of estimated TB patients.
  - The gap is due to a combination of underreporting of detected cases and underdiagnosis (i.e. people with TB do not access health care or are not diagnosed when they do).
  - India (25%), Nigeria (12%), Indonesia (10%) and the Philippines (8%) account for more than half of the total gap.
- TB Treatment Outcomes
  - The latest treatment outcome data for new cases of TB show a global treatment success rate of 85% in 2017, an increase from 81% in 2016. The improvement was mainly due to progress in India.
- Financing for TB Prevention
  - Funding for the provision of TB prevention, diagnostic and treatment services has doubled since 2006.
  - In India, domestic funding quadrupled between 2016 and 2019.
Suggestions
- Access to TB care and preventive treatment needs to be expanded.
- Substantial costs faced by TB patients and their households should be mitigated.
- Intensified research and development is required to meet the Sustainable Development Goals (SDGs) and End TB Strategy targets set for 2030.

- SDG 3 aims to end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases by 2030.
- The End TB Strategy aims to end the global TB epidemic, with targets to reduce TB deaths by 95% and to cut new cases by 90% between 2015 and 2035.

Global Hunger Index-2019

In the recently released Global Hunger Index (GHI) Report-2019, India was ranked at 102nd position out of 117 countries.

- The report is an annual publication that is jointly prepared by the Concern Worldwide (an Irish agency) and the Welt Hunger Hilfe (a German organization).
- The report is based on four indicators namely,
  - Undernourishment (which reflects inadequate food availability)
  - Child Wasting (which reflects acute undernutrition)
  - Child Stunting (which reflects chronic undernutrition)

- Child Mortality (which reflects both inadequate nutrition and unhealthy environment)

- A score is calculated based on the indicators. A low score gets a country a higher ranking and implies a better performance.

Key Findings

- Sharp Decline in the Ranking
  - India’s rank slipped from 95th position (in 2010) to 102nd (in 2019).
  - Over a longer-term duration, the fall in India’s rank is sharper, i.e, from 83rd out of 113 countries in 2000 to 102nd out of 117 in 2019.

- Comparison with Other Countries
  - Among the BRICS grouping, India is ranked the worst.
  - Within South Asia, India is behind every other country. Sri Lanka, Nepal, Bangladesh and Pakistan are all ahead of India.
  - In stark contrast to India, which has the world’s largest democracy and one of the biggest economies, most of the countries below India on the GHI — Afghanistan, Haiti or Yemen etc — are either poorly governed or war-torn or ravaged by natural calamities.

- Child Wasting
  - The share of wasting among children in India marked a steep rise from 16.5% in the 2008-2012 to 20.8% (highest for any country) in 2014-2018.

Note:
India is the worst among all countries on this parameter.

- Open Defecation
  - The report took note of open defecation in India as an impacting factor for health.
  - As of 2015–2016, 90% of Indian households used an improved drinking water source while 39% of households had no sanitation facilities.

- Improvement
  - India improved in indicators that include, under-5 mortality rate, prevalence of stunting among children, and prevalence of undernourishment owing to inadequate food.

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**State of the World’s Children Report 2019**


**Key Findings**

- Malnutrition:
  - At least 1 in 3 children under 5 is undernourished or overweight.
  - At least 1 in 2 children suffer from hidden hunger.

- Implications:
  - The triple burden of malnutrition – undernutrition, hidden hunger and overweight – threatens the survival, growth and development of children, young people, economies and nations.
  - For example, Iron deficiency (a form of hidden hunger) reduces children’s ability to learn and increases women’s risk of death during or shortly after childbirth.

- Causes:
  - The triple burden of malnutrition is driven by the poor quality of children’s diets: 2 in 3 children are not fed the minimum recommended diverse diet for healthy growth and development.
  - Globalization, urbanization, inequities, humanitarian crises and climate shocks are driving unprecedented negative changes in the nutrition situation of children around the world.

- Suggestions:
  - Food environments are crucial.
    - There is a need to empower families, children and young people to demand nutritious food.
    - Similarly, there is a need to drive food suppliers to do the right thing for children.
  - Supportive systems – health, water and sanitation, education and social protection – should be mobilized to scale up nutrition results for all children.

**India-Specific Findings**

- Malnutrition:
  - 35% of Indian children suffer from stunting, 17% suffer from wasting, 33% are underweight and 2% are overweight.
  - Indian children are being diagnosed with adult diseases such as hypertension, chronic kidney disease and diabetes.
  - Every second woman in the country is anaemic, as are 40.5% children.

- In comparison with other countries:
  - Among countries in South Asia, India fares the worst (54%) on the prevalence of children under five who are either stunted, wasted or overweight.
    - Afghanistan and Bangladesh follow at 49% and 46%, respectively. Sri Lanka and the Maldives are the better performing countries in the region, at 28% and 32%, respectively.
  - India also has the highest burden of deaths among children under five per year, with over 8 lakh deaths in 2018.
    - It is followed by Nigeria, Pakistan and the Democratic Republic of Congo, at 8.6 lakh, 4.09 lakh and 2.96 lakh deaths per year, respectively.

- Causes:
  - India is moving away from seasonal food as well as traditional food whereas the consumption of processed food has increased.
  - Over the decades, despite growing incomes, protein-based calories remain low and unchanged, and the calorific share of fruits and vegetables has declined.

- Steps Appreciated:
  - POSHAN Abhiyaan or the National Nutrition Mission is playing a major role in improving nutrition indicators across India.
The Anaemia Mukt Bharat programme to fight anaemic prevalence has been recognized as one of the best programmes implemented by governments across the world to address malnutrition.

- The 6×6×6 strategy (six target beneficiary groups, six interventions and six institutional mechanisms) of the programme has been highlighted for using anaemia testing and treatment as the entry point to provide information on healthy diets.
National Anti-Drone Guidelines

Recently, the Ministry of Civil Aviation has finalized National Counter Rogue Drone Guidelines for handling the threats from Unmanned Aircraft Systems.

- The genesis of the counter rogue drone guidelines lies in the rising number of drone-related safety incidents across the world including in India.
- Recent incidents of the utilization of drones to target VVIPs in Venezuela and Saudi Aramco drone attacks are a stark reminder of the threat level from rogue drones.
- India has an estimated over 6 lakh rogue or unregulated Unmanned Aerial Vehicles (UAVs) of various sizes and capacities

The strategic installations differ from state to state and place to place, based on their geographical condition, criticality and construction type but standard categorization would be:

- **Full-scale model:**
  - It will work for the protection of vital assets of critical national importance like Rashtrapati Bhawan, Parliament House, nuclear installations, major airports, etc;
  - Counter-Unmanned Aircraft System (C-UAS) with primary and passive detection means like radar, Radio Frequency (RF) detectors, electro-optical, and infrared cameras to be installed.

- **Mid-segment model:**
  - It will protect installations like metro airports, oil refineries, ports, and power plants, etc.
  - A lower level of threat mitigation techniques (compared to the full-scale model) to be installed with Counter-Unmanned Aircraft System (C-UAS).

- **Basic model:**
  - Aims to protect state secretariats, important official premises, monuments of national importance etc.
  - The basic threat mitigation technology to be used.

- The Counter-Unmanned Aircraft System (C-UAS) includes the following modern weapons:

  - **Sky Fence:**
    - It aims to block a lethal drone that uses a range of signal disruptors to jam the flight path and prevent them from entering their target, a sensitive installation or event venue.

  - **Drone gun:**
    - It is capable of jamming the radio, a global positioning system (GPS) and a mobile signal between the drone and the pilot.
    - Further, it forces the drone to the ground in good time before it could wreak any damage.
    - Australia has already designed such kind of weapon with an effective range of 2 km.

  - **Advanced Test High Energy Asset (ATHENA):**
    - It works by firing a high energy laser beam on a rogue drone resulting in its complete destruction in the air.
    - It is a very costly technology and is currently being tested by the US army.

  - **Drone Catcher:**
    - It swiftly approaches an enemy drone and grabs it by throwing a net around it.
    - Such a tool is required when a rogue drone is needed to be captured safely to extract incriminating evidence from it.

  - **Skywall 100:**
- It is the ground version of the 'drone catcher' and it works by bringing down a UAV using a parachute that is hurled through a net from 100 meters distance.

- In addition to the counter rogue drone deployment models, the civil aviation ministry has also suggested a set of legal procedures to handle rogue drones.
  - The legislation needs to address the **risk-based use of Counter-UAS authority and coordination** among relevant departments and agencies.
  - The law shall state a legal framework for authorized use of C-UAS systems by security agencies for protecting vital assets, safeguarding manned aviation, supporting law enforcement activities, protecting national borders and conducting operations.

**Radio Frequency (RF)**
- It refers to the electromagnetic radio waves in the range of 3 kHz to 300 GHz, as well as the alternating currents carrying the radio signals.
- This is the frequency band that is used for wireless communications transmission and broadcasting.
- The frequency band is being divided into different parts, which are then assigned to different technology industries. This is known as the radio spectrum. For example, the Very High Frequency (VHF) band, which ranges from 30-300 MHz, is being used for FM radio, TV broadcasts, and amateur radio and its counterparts.

**National Security Guard (NSG)**

The **35th raising day of National Security Guard (NSG)** was observed on **15th October, 2019**.
- The NSG is a counter-terrorism unit that formally came into existence in 1986 by an act of Parliament—‘National Security Guard Act, 1986’.
- It was established in the wake of **1984 Operation Blue Star** (an Indian military action carried out to remove militant religious leader from the Golden Temple, Amritsar), for combating terrorist activities with a view to protect states against internal disturbances.
- It operates under the **Ministry of Home Affairs** and is a task-oriented force that has two complementary elements in the form of:
  - **Special Action Group (SAG)** comprising of the Army personnel - the main offensive or the strike wing of the NSG, and
  - **Special Ranger Groups (SRG)** comprising of personnel drawn from the Central Armed Police Forces/State Police Forces. They generally handle VIP securities.
- It’s motto is 'Sarvatra, Sarvottam, Suraksha'. Its personnel are popularly referred as Black Cat Commandos.
- It has been given the specific role to handle all facets of terrorism in any part of the country as a Federal Contingency Force.

- **Operations undertaken:**
  - Operation Ashwamedh (Indian Airlines Flight-IC427 hijacking, India, 1993).
  - Operation Thunderbolt or Vajra Shakti (Akshardham Temple attack, Gujarat, 2002).
  - Operation Black Tornado (Mumbai Blasts, 2008).

**EX-EASTERN BRIDGE-V**

**EASTERN BRIDGE V** is the **joint bilateral exercise** between the **air forces of India and Oman**.
- It is a **biennial exercise** that aims to enhance interoperability during mutual cooperation between the two air forces.
- The 2019 exercise took place at the Air Force Base Masirah, Oman.
- In 2017, the exercise was conducted at Jamnagar, India.
- Other Exercises Between India and Oman
  - **Naseem Al-Bahr** is the naval exercise conducted between both the countries.
  - **AL Nagah** is the exercise between the **armies** of two countries.

**Danx-19**

Andaman and Nicobar Command (ANC) has conducted the **second edition of Defence of Andaman & Nicobar Islands 2019 (DANX-19)** from 14th–18th October 2019.
- Indian Army, Navy, Air Force, Coast Guard and special forces from newly formed Armed Forces Special Operations Division (AFSOD), participated in the exercise.
The exercise was carried out for mobilisation and field manoeuvres to validate defensive plans of ANC headquarters and ensuring territorial integrity of the A&N Islands.

**Andaman and Nicobar Command (ANC)**
- It is the first and only Tri-Service theatre command of the Indian Armed Forces, based at Port Blair in the Andaman and Nicobar Islands of India.
- It was created in 2001 to safeguard India’s strategic interests in Southeast Asia and the Strait of Malacca by increasing rapid deployment of military assets in the islands.

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**Indo-French Joint Exercise Shakti-2019**

'Exercise SHAKTI' is a biennial exercise that is conducted alternately in India and France.
- The exercise will focus on counter-terrorism operations in the backdrop of semi-desert terrain.
- The exercise aims at enhancing understanding, cooperation, and interoperability between the two Armies.
- Defence Exercises between India and France:
  - **Varuna – Naval exercise**

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**Note:**
- **Garuda** – Air exercise
- **Shakti** – Army exercise

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**Indo-French Joint Exercises**
- **Varuna** – Naval exercise
- **Garuda** – Air exercise
- **Shakti** – Army exercise

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**Note:**
- **Gagan Shakti** is conducted by the Indian Air Force to showcase its air dominance over the entire extended area of the Indian Ocean Region. It includes all-terrain operations – desert, high altitude, maritime scenarios, and special operations – in real-time with a specific focus on key areas like aerial combat, air to surface combat, paratrooper assault and medical evacuation.
- **Garuda Shakti** is the joint military exercise between India and Indonesia.
- **Mitra Shakti** is the joint military exercise between India and Sri Lanka.
**Booker Prize**

The Booker Prize 2019 was awarded jointly to Margaret Atwood and Bernardine Evaristo.

- According to the rules, the Booker prize is awarded annually for a single book and the prize must not be divided. However, the judges insisted they "couldn't separate" Atwood’s "The Testament" and "Girl, Woman, Other" by Evaristo.
- Margaret Atwood is the oldest ever Booker winner and Bernardine Evaristo is the first black woman to win the prize.
- It is awarded annually to the best novel of the year written in English and published in the UK or Ireland.

**National Unity Day**

National Unity Day is celebrated every year on 31st October to commemorate the birth anniversary of Sardar Vallabhbhai Patel.

- It is also known as Rashtriya Ekta Diwas.
- In 2018, the Government of India unveiled the ‘Statue of Unity’ in Gujarat in the honour of Sardar Vallabhbhai Patel.
  - It is the tallest statue in the world.

**Sardar Vallabhbhai Patel**

- Sardar Patel was born on 31st October 1875 in Nadiad, Gujarat.

**Nirvik Scheme**

- Export Credit Guarantee Corporation of India (ECGC) has introduced the Export Credit Insurance Scheme (ECIS) called NIRVIK to enhance loan availability and ease the lending process.
- It is an insurance cover guarantee that will cover up to 90% of the principal and interest. The cover will include both pre and post-shipment credit.
  - The ECGC currently provides credit guarantee of up to 60% loss.
- The enhanced cover will ensure that Foreign and Rupee export credit interest rates will be below 4% and 8% respectively for exporters.
Export Credit Guarantee Corporation of India
- ECGC Ltd is wholly owned by the Ministry of Commerce and Industry.
- The Government of India had initially set up Export Risks Insurance Corporation in 1957.
- Its objective was to promote exports from the country by providing credit risk insurance and related services for exports.

**Cyclone Maha**

A depression developed in the Comorin Sea (near the southernmost end of India) has intensified into a cyclonic storm, named ‘Maha’.
- The name has been given by Oman.
- It lies centered over Lakshadweep and the adjoining southeast Arabian Sea and the Maldives area.
- Cyclone storm ‘Maha’ is the second in the 2019 northeast monsoon season, following close on the heels of super cyclone Kyarr which took its way towards the Arabian peninsula.

**Dar es Salaam and Zanzibar**

As part of the Indian Navy’s Overseas Deployment, four indigenously built ships of the Indian Navy visited the ports at Dar es Salaam and Zanzibar located in Tanzania.

**Dar es Salaam**
- It is the largest city and economic capital of Tanzania.
- It is located in a bay off the Indian Ocean coast.

**Mt Paektu**

Mount Paektu or Changbai (in Chinese) is considered sacred by the Koreans.
- It is a volcanic mountain that last erupted over 1,000 years ago.
- It is situated at the border between Democratic People’s Republic of Korea (DPRK) and China.
- At a height of about 9,000 feet, it has the highest peak in the Korean peninsula.
- The mountain is considered sacred as Koreans treat the mountain to be the spiritual origin of the Korean kingdom, where the founder (Kim Il Sung) was born.

**Zanzibar**
- Zanzibar, an island in the Indian Ocean, is located off the coast of east-central Africa.
- It is located on the Indian Ocean trade routes making it accessible to both traders and colonists from Arabia, South Asia, and the African mainland.

**GOAL (Going Online as Leaders)**

The second phase of GOAL (Going Online as Leaders) has been jointly launched by the Ministry of Tribal Affairs and Facebook to digitally mentor 5000 young women in India’s tribal-dominated districts.
The GOAL is a Facebook program aimed at guiding and encouraging tribal girls from across India to become village-level digital young leaders for their communities.

- It will provide economically and socially marginalized young women with the tools and guidance for the development of livelihood skills.
- It will help to close the digital gender gap by enabling more women to get online and access digital services.

**Nelloptodes Gretae**

Scientists at the Natural History Museum in London have officially named a tiny species of beetle *Nelloptodes gretae*. It has been named after the 16-year-old Swedish environmental campaigner Greta Thunberg.

- N. gretae was first found in Kenya in the 1960s which was later donated to the Natural History Museum in London in 1978.
- The naming signifies Greta’s contribution to raising awareness of environmental issues.
  - There are parasites named after Bob Marley (Gnathia marleyi), a genus of fish called after Richard Dawkins (Dawkinsia), a spider called Spintharus leonardodicaprioi after Leonardo DiCaprio are some other species named after famous personalities.

**Greta Thunberg**

The Swedish teenage climate activist Greta Thunberg was recently awarded the Right Livelihood Award-2019, also known as Sweden's alternative Nobel Prize.

**Sakhalin Oil Field**

Recently the Minister of Petroleum and Natural Gas has visited Sakhalin oil field in Russia.

- During the recent Vladivostok Summit, there was agreement on a roadmap of cooperation over the next five years in the hydrocarbon sector.
  - It included strengthening Liquified Natural Gas (LNG) exports to India; encouraging Russian companies to participate in gas projects in India including in Arctic LNG infrastructure projects.
  - Sourcing of coking coal from the Russian Far East is now a major priority.

**Vladivostok Summit**

- Recently 5th meeting of the Eastern Economic Forum (EEF) was held in Vladivostok.
- This is the first time that an Indian Prime Minister visited the Russian Far East Region (Vladivostok).

**Coking Coal**

- Coking coal, also known as metallurgical coal, is used to create coke, one of the key inputs for the production of steel.
- Coke is used as a fuel and as a reducing agent in smelting iron ore in a blast furnace (converting iron oxide (hematite) into iron metal).

**Australia’s Uluru Rock**

Australia’s giant Red Monolith - Uluru (Also known as Ayers Rock) has been permanently closed for trekking by the Australian government.

- The spiritual significance for Anangu (An aboriginal tribe of Australia) is responsible for the ban.

**Uluru**

- It is the huge red rock monolith located in the Central Australian desert.
- Ayers Rock (now Uluru) was first declared a national park in 1950 and renamed as Uluru-Kata Tjuta National Park in 1993.
Uluru-Kata Tjuta National Park is included in the UNESCO World Heritage List for both its natural and cultural values.

- Uluru is made up of sandstone and is about half a billion years old.
- It stands 348 metres high and has a circumference of 9.4 km.

**World Heritage Site**

- The sites are designated as having “outstanding universal value” under the Convention Concerning the Protection of the World Cultural and Natural Heritage 1972 is included in the UNESCO World Heritage Sites list.
- There are three types of sites:
  - **Cultural heritage sites** include hundreds of historic buildings and town sites, important archaeological sites, and works of monumental sculpture or painting.
  - **Natural heritage sites** are restricted to those natural areas that:
    - Furnish outstanding examples of Earth’s record of life or its geologic processes
    - Provide excellent examples of ongoing ecological and biological evolutionary processes.
    - Contain natural phenomena that are rare, unique, superlative, or of outstanding beauty,
    - Furnish habitats for rare or endangered animals or plants or are sites of exceptional biodiversity.
  - **Mixed heritage sites** contain elements of both natural and cultural significance.

**Aflatoxins**

- Aflatoxins are toxins produced by certain fungi which are generally found in agricultural crops like maize, peanuts, cotton seed and others. They are carcinogenic in nature.
- According to a World Health Organization (WHO) study, consumption of food containing aflatoxin has been suspected to cause aflatoxicosis, the outcome of which consists of acute liver failure, jaundice, lethargy and nausea, eventually leading to death.
- The exposure to Aflatoxin-M1 (AFM1) from milk causes stunting among children.

**Thotlakonda Buddhist Monastery**

Mahastupa of the Buddhist heritage site of Thotlakonda, which was reconstructed in 2016 by the State Archaeology department, collapsed recently.

- It is 2000 years old monastic complex with remnants of stupas, chaitya grihas and viharas atop Thotlakonda Hill, Andhra Pradesh.
- The Buddhist monks arriving from places like China, Burma, and many other countries used to stay at this site for months before finishing their learning.

**Liver Transplant Registry**

India’s first voluntary liver transplant registry has been started by the Liver Transplantation Society of India. The registry aims to collate national data of the procedures and their outcomes.

- Nearly 2,000 liver transplants are carried out in the country annually, the highest in the world, yet there is no India-specific data.
- In the Western countries, organ transplants are highly regulated and permissions are given to hospitals and...
Bhashan Char Island

Rohingya refugees living in Bangladesh camps have agreed to move to Bhashan Char Island in the Bay of Bengal.

➢ The island is also known as Thengar Char Island.
➢ Bhashan Char island was formed about two decades ago on the mouth of river Meghna.
➢ This uninhabited island is located around 30 kilometres east of Hatiya island in South-East Bangladesh.
➢ The Bhashan Char falls in an ecologically fragile area prone to floods, erosion and cyclone.

United Nations Day

Each year on 24 October, the United Nations (UN) celebrates its anniversary. UN Day marks the anniversary of the entry into force of the UN Charter and the founding of the Organization in 1945.

➢ The name "United Nations" was coined by the United States President Franklin D. Roosevelt.
➢ The main organs of the UN are:
  ○ the General Assembly,
  ○ the Security Council,
  ○ the Economic and Social Council,
  ○ the Trusteeship Council,
  ○ the International Court of Justice,
  ○ the UN Secretariat.
➢ The forerunner of the United Nations was the League of Nations, an organization conceived in circumstances of the First World War, and established in 1919 under the Treaty of Versailles "to promote international cooperation and to achieve peace and security."
➢ It will celebrate its 75th anniversary on 24 Oct, 2020.

Mole Day

Mole Day is an unofficial holiday celebrated among chemists, chemistry students and chemistry enthusiasts on October 23, between 6:02 AM and 6:02 PM, making the date 6:02 10/23 in the US date format.

➢ The time and date are derived from Avogadro’s number, which is approximately $6.02 \times 10^{23}$, defining the number of particles (atoms or molecules) in one mole of a substance, one of the seven base SI units.
➢ The seven base units in the SI system are:
  ○ the kilogram (kg), for mass
  ○ the second (s), for time
  ○ the kelvin (K), for temperature
  ○ the ampere (A), for electric current
  ○ the mole (mol), for the amount of a substance
  ○ the candela (cd), for luminous intensity
  ○ the meter (m), for distance

Avogadro’s Number

➢ The number of particles (atoms, molecules or ions) present in 1 mole of any substance is fixed, with a value of 6.022 × 1023.
➢ This is an experimentally obtained value. This number is called the Avogadro Constant or Avogadro Number (represented by N0), named in honour of the Italian scientist Amedeo Avogadro.
➢ 1 mole (of anything) = 6.022 × 1023 in number, as, 1 dozen = 12 nos.
➢ The Avogadro constant 6.022 × 1023 is defined as the number of atoms in exactly 12 g of carbon-12.

TechSagar

The National Cyber Security Coordinator’s office in partnership with the Data Security Council of India (DSCI) has launched ‘TechSagar’, an online portal of India’s technological capability.

➢ It provides actionable insights about capabilities of the Indian industry, academia and research across 25 technology areas like Internet of Things (IoT), Artificial Intelligence (AI), etc.
➢ Agenda
  ○ The losses due to cyber crime globally on an average is 2.5% of the Gross Domestic Product (GDP).
Thus, India’s dream of growing to $5 trillion economy by 2025 is being seriously threatened by the losses due to cyber crimes.

TechSagar will facilitate new opportunities for businesses and academia to collaborate, connect and innovate in the future.

National Cyber Security Coordinator

➤ In 2014, the Prime Minister’s Office created the position of the National Cyber Security Coordinator.
➤ The NCSC office coordinates with different agencies at the national level for cyber security matters.

Data Security Council of India

➤ DSCI is a not-for-profit premier industry body on data protection in India, setup by NASSCOM, committed to making cyberspace safe, secure and trusted by establishing best practices, standards and initiatives in cyber security and privacy.
➤ Its Registered Office is located in New Delhi.

Silicon Valley Opens for Tourism

The Siachen Glacier area of Ladakh has been declared open for tourists by the Government of India.

➤ Siachen, the world’s highest battlefield, was closed 35 years ago for civilians.
➤ The announcement came during the inauguration of ‘Col Chewang Rinchen Setu’.
➤ Col Chewang Rinchen Setu is built over River Shyok, which connects Durbuk and Daulat Beg Oldie in Eastern Ladakh.
➤ The location of the bridge is sandwiched between strategic Karakoram and Chang Chenmo ranges.
➤ The Setu is a 430-metre bridge built at an altitude of about 15,000 feet using Micro Piling Technology.
   • Micropiles are a deep foundation element constructed using high-strength, small-diameter steel casing and/or threaded bar.
   • The bridge is built by Border Roads Organisation (BRO).

Siachen

➤ The entire Siachen Glacier, with all major passes, is under the administration of India since 1984 (Operation Meghdoot).

Ramgarh Dam

The Ramgarh dam, located in the state of Rajasthan, which earlier supplied drinking water to the city of Jaipur has dried completely in the last decade.

➤ To resolve this problem, it has been recommended that the Chambal river water be supplied to the dam through the proposed Eastern Rajasthan Canal Project.
   • The Eastern Rajasthan Canal Project proposes to transfer excess water from the Chambal river basin to 13 districts facing water scarcity in Rajasthan.
➤ The dam was constructed in 1904 during the reign of erstwhile Jaipur ruler Sawai Madho Singh-II.
It is to be noted that the Ramgarh lake had hosted rowing events during the 1982 Asian Games.

**Chambal River**

- It is the chief tributary of the Yamuna River.
- It’s a 960 km. long river that originates at the Singar Chouri peak in the northern slopes of the Vindhya mountains (Indore, Madhya Pradesh).
- It flows through the states of Madhya Pradesh, Rajasthan and Uttar Pradesh.

- Tributaries: Banas, Kali Sindh, Parbati.
- **Main Power Projects/Dam:** Gandhi Sagar Dam, Rana Pratap Sagar Dam, Jawahar Sagar Dam, and Kota Barrage.
- The **National Chambal Sanctuary** is located along river Chambal on the tri-junction of Rajasthan, Madhya Pradesh and Uttar Pradesh. It is known for critically endangered gharial, the red-crowned roof turtle, and the endangered Ganges river dolphin.
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